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A JOURNAL OF INTERNATIONAL TRADE

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Acres of coal barges are the most striking feature of the mercantile navies that throng Pittsburgh's waterways

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TRADE CONDITIONS AROUND THE WORLD

The Economic Effects of the European War on the Commerce and Industries of Various Countries

ANY survey of recent commercial and industrial conditions around the world divides itself into two sharply contrasting periods—one of peace and one of war. The swift transition from one to the other was marked by unprecedented disturbances of credit and transportation. Nearly all countries immediately declared moratoria, and many of these are still in force. Ocean freights rose, owing to the difficulties and dangers of transportation and the demand for cargo space. Then followed a period of readjustment which is still in progress. New markets are being found to replace those that have been closed or disorganized by war. The necessities of the belligerents have caused an uneven distribution of industrial production. One class of manufacturers has had to enlarge its plants and to run night and day; another has been comparatively idle.

To a greater or less degree these conditions have been universal. The world is now commencing to adapt itself

information as they may require regarding trade conditions in any country in any line or lines in which they may be interested.*

The United States, being the largest of the neutral nations, and owing to the extent, variety and high development of its industries and trade, was the first to recover from the world-wide shock that followed the outbreak of the war. American trade conditions, therefore, have improved rapidly, and, as a whole, are now on a much more satisfactory basis.

Canada's foreign trade for the fiscal year ending March 31, 1915, showed a falling off of only about 3 per cent. as compared with the previous twelvemonth. Owing to its relative proximity to the seat of war, to its great natural and industrial resources, and to its prosperous condition, Canada has been one of the most important contributors among the dominions of the British Empire to the support of England in the present conflict. Its industries



The return of the sailing craft to the deep seas is strikingly evidenced by this picture of the coal fleet at Newcastle, N. S. W., an important port for the shipment of coal, wool and frozen meats

to these new circumstances, and, nearly everywhere, there are evidences that the period of depression and disorganization is either approaching its end or is over, and that the pendulum of trade is beginning a long swing in the opposite direction.

In such a brief space as this it is of course impracticable to do more than mention some of the general features that have characterized these vast commercial and industrial changes. DUN'S INTERNATIONAL REVIEW, however, will be glad to furnish its subscribers with such specific

are busily employed, and its agricultural and mineral output for the present year promises to be large.

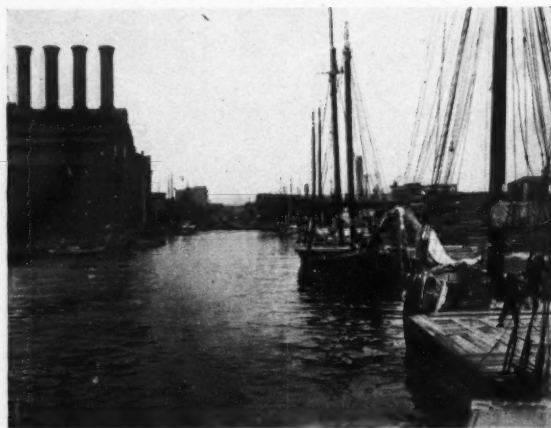
Mexico, owing to its internal troubles, has been little affected by the war in Europe. Business and industry in that republic still continue to be at almost a standstill so far as external trade is concerned.

Central America, as a whole, has suffered somewhat less from the commercial disturbances due to the war overseas than some of the larger divisions of the Western Hemisphere. On the other hand, owing to the exports of this region being largely products of the soil, it has not benefited in so great a measure as countries where manufacturing occupies a large share of the community. Generally speaking, however, both Central and South Ameri-

*The Editors of DUN'S INTERNATIONAL REVIEW will be pleased to receive letters or contributions from readers in any part of the world regarding the business situation in their respective districts.

can trade seems likely to be stimulated by the necessity of finding new markets for raw materials, and, for this reason, probably will eventually be on a far broader basis than ever before.

Coffee and bananas are the principal exports of the republics of Central America. More than 50 per cent. of Guatemala's exports went to Germany in 1913, with



This picture of the lumber wharves at Baltimore shows one of that city's many maritime activities

the United States second. Since the war began and the German market was closed, Guatemala's coffee growers have made an energetic campaign in the United States, and have succeeded in creating a demand for their entire crop there at satisfactory prices.

Honduras has been hampered by a lack of transportation facilities, and its condition has been little affected by the war.

British Honduras experienced a decline in the prices of all its products, except bananas, plantains and chicle, when the war began, and shipments fell off owing to the general dislocation of the markets. Banking facilities and local credits, however, have been adequate. Greater attention is being paid to raising bananas, and it is expected that this year's production of fruit will be double or treble that of last year.

Lack of exchange was the greatest source of inconvenience in Costa Rica after the first week in August, but as the republic was in a prosperous condition, this was not long in being remedied, and trade conditions continue to be relatively satisfactory.

Salvador, in 1913, exported products to the value of nearly \$10,000,000 and purchased abroad about \$6,000,000 worth of goods. The area of the republic, though small, is well developed, and the condition of the country is prosperous.

Nicaragua was somewhat adversely affected by the war, as its national finances were in process of readjustment when it began. The general business condition of the country, however, gives evidence of recovery.

The principal products of British, Dutch and French Guiana are sugar, rum, crude rubber, coffee and gold. Commercial travelers who have visited these countries recently state that trade is recovering from the period of depression that followed the opening of the war.

For the last four years Venezuela has shown a surplus of national revenue over expenditure. In 1913, the exports were valued at \$30,000,000 and the imports at \$20,000,000. The principal products, cocoa and coffee, find their chief markets in the United States. Sales of American automobiles in Venezuela have increased materially since the beginning of the war. From July, 1914, to March, 1915, both inclusive, only four European cars were imported, as compared with 97 new American cars.

A large proportion of Colombia's external commerce is also with the United States. No moratorium was de-

creed there, and the republic's national and private credit has been comparatively little affected by the war.

Ecuador's chief export is cocoa, a commodity for which the war has increased the demand. Last year's crop was unusually large, and the high prices that prevail for this year's crop are an indication of a favorable trade balance for that country.

Bolivia is the second tin-producing country in the world. The rise in freight rates hampered the exports in the early months of the war, but this condition no longer exists. The tin production is likely to be much stimulated owing to the demands for this metal by the belligerents.

The situation in the rubber producing states of Brazil is improving, and the state of the sugar, cocoa and cotton crops, as well as of the mining industry, is regarded as being increasingly favorable.

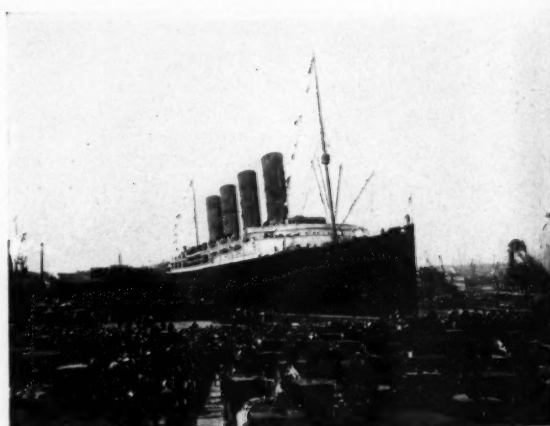
Argentina's international commerce was diminished for several months after August first, owing to the abnormal rise in ocean freights. Disappointments in the size of the wheat, linseed and oat crops were reflected in the trade balances. This year's harvests, however, promise well, and with the high prices prevailing are expected to place this country in an exceedingly favorable position commercially.

The nitrate trade of Chile, which is the chief source of government revenue, was much depressed at first owing to the restrictions imposed upon it by the war. Trade with the United States, however, is now reported as normal, and nitrates are moving more freely to Italy, Denmark, Spain, France and Sweden.

The chief items of export from Peru are minerals, sugar, rubber and cotton. The opening of the Panama Canal has been a great factor in counteracting the unfavorable influences of the European war, and exports and imports are increasing.

Uruguay's foreign trade has shown progressive values for many years. Out of a total of \$111,000,000 in 1913, exports represented nearly \$65,000,000. France and Italy have been large customers of Uruguay since the beginning of the present year, having purchased heavily of sheepskins, leather, frozen meat and cereals. Since the improvement in the shipping situation the prosperity of Uruguay has been advancing steadily.

The position of the inland republic of Paraguay has kept that country fairly free from the shocks of war that



*Photo by Edwin Levick, New York
The Lusitania's arrival at New York in 1907, on her maiden voyage.
Note the absence of motor cars on the dock*

have affected the rest of the world and little change in the business conditions there is noted.

In the West Indies the outlook is still more favorable. Cuba's sugar production last year was the largest in the history of the Island, and the tobacco crop was also unusually great. Prices, however, ruled low. Much of the sugar was contracted for before the outbreak of the war. This year's sugar crop is large, however,

and the high prices that are being realized have resulted in a marked increase in the business activity of the Island. Last autumn's planting of tobacco was the smallest known in years, but this caused an increase in the acreage of cane and other crops, which has still further contributed to the prosperity that Cuba is now enjoying.

In the British West Indies, in 1914, the two principal crops—cocoa and sugar—were the largest for many years. The present crops also promise well, which, together with the high prices prevailing for these commodities, makes the outlook unusually excellent.

The principal products of Porto Rico are sugar, tobacco, fruits, nuts and coffee. While the aggregate commerce for the calendar year of 1914 showed a decrease as compared with the year preceding, the trade of that island is increasing from the same causes that are contributing to the prosperity of other parts of the West Indies.

Trade conditions in the European countries now at war are a part of each day's news, and the general situation is so well known that it needs no extended comment here. There are certain features, however, that are of particular interest.

of good quality, was dull. After the outbreak of the war the loss of certain markets and the disruption of business interfered with the trade. Of late, however, the factories have been busy supplying the British, Colonial and French troops, and trade is now flourishing. Establishments capable of making armament, ammunition, castings, etc., for military and naval use are running to their fullest capacity. Depression is evident only among industries whose markets are now closed and which are not in a position to take advantage of government orders.

In Scotland, the Glasgow district has been less disturbed by the war than any other part of the United Kingdom of equal importance in commercial and industrial wealth and power. Textile trades have been affected adversely. The great bulk of the foodstuffs imported for consumption in the west of Scotland is received and distributed from Glasgow. Grains come chiefly from the United States and Canada, with increasing quantities from Australia, India and Argentina. Shipbuilding on the Clyde is now chiefly for the government, and all the plants are busy. The steel and coal-mining industries, of which Glasgow is a great center, are very active. The large sugar refineries have had to curtail their operations ow-

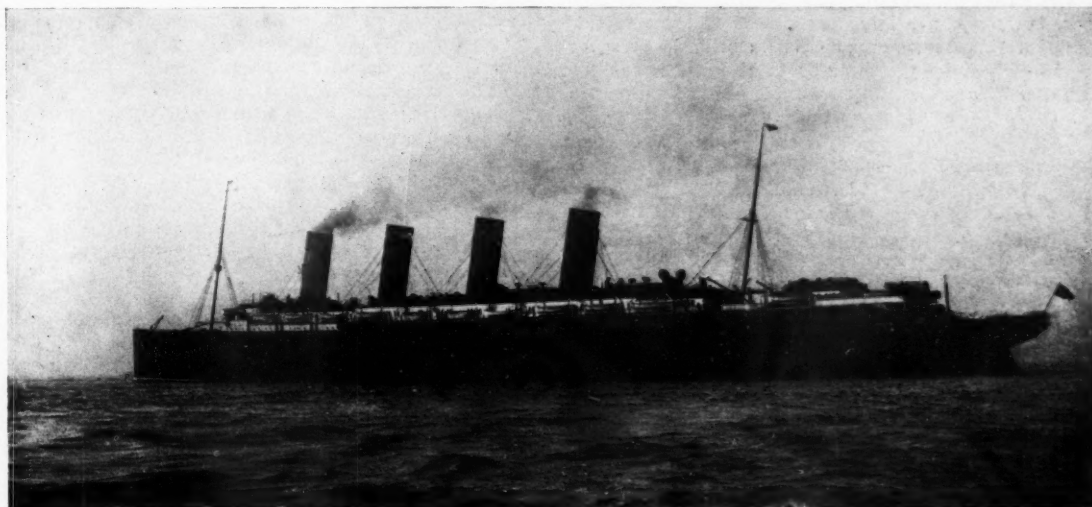


Photo by Edwin Levick

The Lusitania on her last voyage. This picture was taken when she was off Sandy Hook, outward bound from New York to England, on the trip that ended in sight of the Irish coast

In the United Kingdom the marked decrease of exports and the increase of imports are indicative of the trend of business. The busiest industries are those engaged in the manufacture of military requirements.

Ordinarily Liverpool handles about one-fifth of the grain, flour, meat and other food supplies imported into the United Kingdom. A vast increase in the commerce of this port has occurred since last August by the closing of other ports owing to the war. At Bristol the staples of the shipping trade are grain, oil, fruit and timber. In these the imports have increased strikingly since the first of the year. Bristol has a weekly fruit service from Central America and Jamaica, and usually receives about 3,000,000 bunches of bananas a year. The imports of this fruit have more than doubled since the war began.

Birmingham, one of the chief industrial centers of England, is the seat of many great manufactories that have benefited largely by the demand for war munitions and equipment. To this is due, in a great degree, the general prosperity of this part of the country. On the other hand, the manufacture of jewelry, another great industry of the Birmingham district, has suffered severely from the war.

Iron and steel manufacturing are Sheffield's great industries. During the first seven months of last year the cutlery business, especially in table, pen and pocket knives

ing to the shutting off of imports of raw sugar from the beet-growing countries of Europe.

One of Dundee's chief interests is the manufacture of jute which is imported from India. In November, restrictions were imposed on yarn and cloth exports to all neutral countries. Conditions, however, have since greatly improved in the jute trade, principally owing to large orders for military requirements.

In Germany, according to the American Association of Commerce and Trade (Berlin), the brisk demand for military purposes, as well as for general use, has caused a steady rise in prices of commodities during the last few months. This, however, has not reached the records of former years. Nowhere, for example, in the entire steel trade, have figures reached any level that was not attained in 1900. Apart from cereals, which have risen steadily, the prices of foodstuffs in general are reported to have increased but slightly or not at all.

According to American consular reports, the great harbor of Hamburg, which, after London, is the second in Europe, has lain idle since the commencement of hostilities. In the Kingdom of Saxony the industries are reported comparatively stagnant, except those which are engaged in supplying government requirements. The great electrical concerns have changed their articles of production; factories which before the war produced iron railings or

sewing-machines are now making shells; typewriter factories are making bicycles; chemical works that formerly produced dyes now are devoted to the manufacture of pharmaceutical articles. The ability of industrial concerns to alter the nature of their output is necessarily restricted, and the change in production is also confined to articles of domestic consumption, which, in turn, is limited to the decreasing purchasing capacity of the people.

Austria-Hungary's imports and exports, from August 1 to the outbreak of the war with Italy, moved through Rotterdam, Copenhagen and Genoa. Difficulties in transportation, however, have caused practically a cessation of all external trade except with Germany.

Notwithstanding the downward tendency of economic conditions at the beginning of 1914, it is considered probable that France would have had an unusually prosperous year if war had not broken out. For the first few months after the commencement of hostilities there was a complete disturbance of commercial and industrial life, but by the end of the year French trade had adjusted itself to war conditions and was progressing favorably.

At first many industries were seriously affected by the difficulty of obtaining expert hands to replace those that had been called to serve in the army. These conditions, however, have been ameliorated to some extent, as skilled workmen have been obtained among the refugees from Belgium and from those parts of France that are within the zone of war. Former employees also have



The docks at Newcastle, N. S. W., are equipped with the latest modern appliances, such as the loading cranes here shown

been sent back by the military authorities to many of the establishments working on war materials.

Shortly after the beginning of hostilities the great metallurgical centers of the north and east of France were invaded and occupied by Germany, and possession taken of the rich ore mines and the large furnaces and rolling mills located in that region. As, with the exception of Germany, France is the largest producer of iron ore in Europe, and the third largest in the world, this has had an unfavorable effect on that and allied industries. France, however, like the other European countries at war, has expanded and developed to the fullest possible extent all the industries upon which the conduct of military operations depends. The other branches of manufacturing have prospered or declined according to the supply of raw materials and the demand for the manufactured products. The foreign trade of France, not including gold, silver, etc., for the first four months of 1915, was \$597,346,773, as compared with \$1,009,890,835 for the same period of 1914. The imports declined about \$163,000,000 and the exports about \$250,000,000.

Denmark's trade has increased strikingly since the war began. Copenhagen is the only free harbor in the north of Europe; the city has a sufficiency of banks, and many foreign houses have branches or representatives there.

Sweden has suffered less, in all probability, than most

neutral countries connected by the incidence of geographical position with the scene of the great conflict. The pulp and paper industries, for example, have been affected but little by the war. International exchanges have been reorganized, most of the industries are normally active, and commerce has not been seriously interrupted, although shortage and uncertainty in transportation facilities have checked the expansion of trade.

The economic position of Spain is evidenced by the fact that it is the only important country of Europe that has not decreed a moratorium. Commerce and industry there were affected by the world-wide depression that preceded the war, but both have been very active since the opening of the present year.

The import trade of Portugal was hampered during the latter part of last year by restrictions imposed upon productive or manufacturing countries on the one hand, and by increased cost price, freight, insurance, etc., on the other. There was a considerable increase in the value of articles re-exported from the Portuguese colonies.

The cork industry has not been adversely affected by the war, although the closing of the Russian factories eliminated what was the most important market in Europe. Last year's olive crop was the largest in years, and a surplus of oil exists for exportation. As the result of the employment of modern devices, the sardine catch has increased steadily the last five years, with a corresponding increase in the volume of exports. The exportation of the wines for which Portugal is famous has fallen off somewhat, owing to the closing of some of the European markets by reason of difficulties in transportation, but it has increased in other directions.

Commercial and industrial conditions in Greece are reported as being generally good. Manufacturing is proceeding without serious interruption, and trade over-seas has fallen off more in the line of imports than exports. The crisis in the currant trade last autumn has passed, and the condition of that industry is now regarded as favorable. A similar state of affairs exists in such commodities as olives, olive oil, cheese and wine. Cereals, cotton and woolen goods, lumber, sugar and coffee, cured fish, coal, iron manufactures, rice and hides make up about 60 per cent. of the imports. These are now being supplied by new markets, owing to the cutting off of many of the former sources through the operation of war.

Northern Africa is largely agricultural and the effects of the war have been less seriously felt than might otherwise have been the case. Business prosperity in Algeria is materially affected by the production and price of wine, which is the most important article of export. The low prices paid for the product since the outbreak of hostilities have therefore influenced business conditions adversely. Reduced demands in France and difficulty of transportation have decreased the volume of exports of the 1914 vintage.

The mining industry of South Africa is very active, and the indications are favorable for an unusually large output of gold from the Transvaal. The progress of agriculture is being well maintained, despite the military operations that have been proceeding in widely separated parts of the country, and trade in general is showing a considerable expansion, notwithstanding the large contributions of men and money that the Union of South Africa has made to the war.

The Russian Empire, in Europe and Asia, before the war, drew fully half of its manufactured imports from Germany. With the outbreak of the conflict, Russia found herself, without warning, confronted with the necessity of manufacturing goods for her own consumption or of buying them from her allies or from neutral countries. In the latter, Russia has been hampered by inadequate means of communication with the rest of the world. The gigantic task of effecting an industrial and commercial reorganization while carrying on her part in the war is now being worked out by Russia. An instance that may be cited is that the Russian government recently arranged for the construction in domestic shops of 60,000 railroad

cars a year for an indefinite period and placed a large additional order in America for delivery this summer.

The export trade of China has been seriously affected by the closing of the European markets. In normal times silk went in larger quantities to France than to any other destination, and Germany was the principal handler and consumer of tea. The exports of the general produce of the country also were largely in German hands. Since the war began the exports have been principally through Japanese and British channels. Says a recent American consular report:

"While trade in China was poor and crops only fair last year, the recuperative power of the Chinese people was drawn upon successfully, as usual, and the finances of the Chinese government, thrown into confusion by the large decrease in customs revenue, were saved by reforms in certain lines."

Up to and including last July, Japan's export trade made great gains. Then a sudden check was placed on its progress, and the results for the last five months of 1914 showed a decrease of more than \$33,000,000 as compared with the same period of 1913.

Exports to Europe after the outbreak of the war decreased 72 per cent., and to Asiatic countries 18 per cent. The war also caused a decrease of 50 per cent. in the imports from European countries, 38 per cent. from America, and 34 per cent. from Asiatic countries. The trade be-

most satisfactory records in commercial and industrial undertakings. In fact, prosperity was the watchword.

"The exigencies of belligerency subjected exporting to various restrictive regulations. Ocean tonnage was requisitioned for the transport of troops, horses and munitions of war. The end of December saw modifications of the first stringent supervision, but foreign dealing was still far from normal and domestic operations reacted accordingly."

Australia's imports, during the first eight months of the war, shrunk by some \$55,000,000 in value, according to the *Sydney Herald* of April 9, and exports declined by some \$120,000,000. The chief item among the exports that has fallen off has been wool, which is responsible for \$50,000,000 of the shrinkage. On the other hand, it is stated that this does not mean a corresponding decrease in the production of wool—simply that that much less than usual has been shipped. The decline in the exports of wheat—\$25,000,000—and the decrease of \$3,600,000 in the exports of flour, however, were due to the drought. Diminished shipments of concentrates account for \$10,000,000 more of the decline in exports, and copper and tin for \$5,000,000. These conditions and the withdrawal of many men from the ranks of Australian industry to the fields of war naturally have affected the international trade of the Commonwealth for the time being, but with the soundness of its financial position and other important



Port Macquarie, on the coast of New South Wales at the mouth of the Hastings River, has become one of Australia's important harbors. The circular quay is here shown

tween Japan and Australia, however, was but little affected.

Financial conditions in Japan during 1914 were not satisfactory. The anomalous conditions of exchange and the transportation conditions hampered Japanese trade seriously for some months after the beginning of the war, but these conditions are now rapidly readjusting themselves, and a decided improvement, commercially and industrially, is anticipated.

The last five months of 1914 showed a heavy decline in the seaborne trade of British India, owing to the closing of the German market, which, after the United Kingdom, was India's largest customer. The principal items of export from India are raw jute, rice, cotton twist, raw cotton and cotton seed, coffee and opium. The chief imports are railway rolling stock, sugar, cotton piece goods, woolen textiles, iron and steel and manufactured articles. Recent reports from India show that that country is recovering satisfactorily from the depression caused by war. At no time have India's finances given cause for concern.

Of Australia, an American consular report says:

"From January to the end of July, 1914, the Australian Commonwealth made marked progress toward the establishment of

and favorable factors, an early reversal in Australia's present trade balance seems likely to occur.

The Prime Minister of New Zealand published a statement on April 15, 1915, that the exports from that Dominion for the financial year ended March 31 were abnormally large, amounting in value to more than \$130,000,000, an increase of nearly \$20,000,000 over the preceding year. "No doubt," he said, "this accounts for the prosperity which the country is enjoying, and for the fact that money is more plentiful in New Zealand than in any other Dominion of the Empire."

A recent American consular report, speaking of trade conditions, says:

"Possibly New Zealand has suffered less in consequence of the war than any other country. Shortly after war was declared business was disturbed to a certain extent and the banks suspended specie payment, but the government made the outstanding issue of paper currency legal tender. Some firms were not able to discount their paper and asked for extensions, but there was little serious embarrassment. So soon as producers were assured that the ocean trade routes would remain open, enabling their produce to reach London markets and permit the importation of merchandise, confidence was restored. With the exception of dullness in the building trade, business is almost normal. Merchants, however, are not purchasing large stocks. Generally speaking, there were pretty full stocks when the war commenced."

RUBBER, THE "BLACK GOLD" OF MANY LANDS

New Factors that Affect Present Prices—War Increasing the Consumption of Rubber—The Industry in America

(Illustrations loaned by "The India Rubber World," New York)

RUBBER is often called "black gold," because it is the barometer of prosperity in the regions where its production is the chief source of wealth.

Rubber prices, under ordinary conditions, move up or down in accordance with the workings of the law of supply and demand. Since the outbreak of the war, however, new factors have appeared and have assumed considerable

Principally because of the demand for rubber among the belligerent nations prices of crude rubber are moving upward, although for certain grades they are not yet much higher—and in some cases even less—than they were a year ago. Fine, new upriver Para, for example, was quoted in the New York market at the end of last May at 61 cents a pound. It was 60 cents May 1, and 70 cents June 1, 1914. Upriver, coarse new Para was 46 cents a pound May 29, 1915, and 46 and 43 cents, respectively, May 1 and June 1, 1914. Several years ago, during what was known as "the rubber boom," when there was much speculation in this commodity, the best crude Para was nearly \$3 a pound.

The world's production of rubber in 1905 was 61,000 tons. The total estimated output for 1915 is 120,000 tons, which is but little larger than that of the next previous year, and 10.4 per cent. greater than the 1913 output. As to the distribution in 1914 the following figures (in tons) are given by a London firm, the figures for 1913 being set forth in parentheses for comparison:

United States, 55,000; Canada, 1,770 (United States and Canada, 48,000); Great Britain, 18,000 (18,640); Germany, 13,000 (15,500); France, 7,000 (6,500); Belgium, 1,000 (3,000); Russia, 14,000 (9,000); Austria-Hungary, etc., 2,000 (3,000); Italy, etc., 4,000 (2,000); Scandinavia, 2,000 (1,500); Japan and Australia, 2,000 (1,300); total, 1914, 119,770 tons, against 108,440 tons in 1913.

Rubber is divided into two general classes: "plantation" and "Brazil." The principal sources of supply of plantation rubber are Ceylon, British Malaya (Federated States, Perak, Malacca, Johore, Straits Settlements), Sumatra, Java, India and Borneo. In 1914 the output of these regions was nearly 64,000 tons. The Brazilian product amounted to about 37,000 tons. In this are included the harvests not only of Brazil, but of Bolivia and Peru, which find their way down the Amazon and are exported from Para, Manaus and Itacoatiara via Para.

The consumption of rubber has been less than the production since 1910. *Capital*, a Calcutta publication, estimated, about a year ago, that production and consumption would be even in 1915, basing its opinion on expected yields per acre. The uncertain factor in all such calcula-

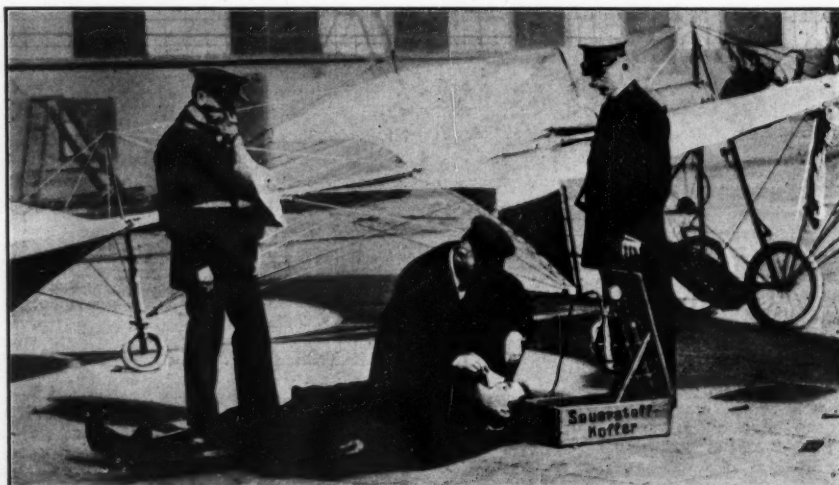


The submarine divers are the surgeons of stricken ships. Two of their outfits are here shown

importance. In the primary markets there is no lack of rubber ready for shipment. War has increased the demand for rubber, but it has diminished the facilities for its delivery to some of the principal manufacturing and consuming countries. This has caused a wide variation in prices.

Rubber is absolute contraband of war. In Germany and Austria, where the demand has outrun the supply, it is worth far more than it is elsewhere. On the other hand, the elimination of these two nations from the rubber market has kept prices from advancing as rapidly as they otherwise would owing to the increased consumption in other countries.

Restoring an exhausted aviator with the oxygen apparatus. The man at the left wears a respirator, enabling him to work in vitiated air and to go into the gas bags of an inflated war balloon to make repairs



tions, however, is the wild rubber. The "plantation" acreage and production can be quite accurately ascertained.

The rubber industry in the great producing regions of South America is practically all based on credit. The concessionaire, who operates a tract of land under government franchise, advances supplies for a whole season to his employees (*seringueiros*), charging them against rubber which they are to collect and turn over to him. Usually the concessionaire obtains these supplies from an importer at Manaus or Para. To secure this credit the concessionaire has to pledge to the importer the whole of his rubber crop. The importer, in turn, receives his merchandise on credit from foreign merchants, often rubber speculators. This arrangement naturally makes the prosperity of trade in the rubber regions directly dependent, in the last analysis, on the activity and industry of the native laborers who work in the great tropical solitudes where the rubber tree is indigenous. Says Joseph Froude Woodroffe in his book, "The Upper Reaches of the Amazon":

"Only a small proportion of the forests are known to any but the savages, as none but those *seringais* conveniently situated close to the waterways are exploited. That does not mean, however, that the proprietors do not possess the right and title to work them. Every *seringal* before it can be worked requires a great expenditure of energy, hard work, patience and capital. The trees must be discovered and grouped in lots of from 80 to 100, each forming an *estrada*. Taking as a basis that 50 *estradas* equal one *seringal*, this would give a total of from 4,000 to 5,000 trees to each proprietor."

A legally owned *seringal* has to pay certain taxes and Government charges for the right of working the area allotted; then the *mateiro*, or skilled woodsman, has to be engaged and paid, and his fees are excessive. His duty is to discover the trees, group them into *estradas* for tapping and mark those to be tapped. What with this, that and the other expense, "it is reasonable to suppose," says Mr. Woodroffe, "that an estate of 50 *estradas* must cost about £1,000 to open out before a single tree is cut."

"Every *seringueiro*, or tapper," says *Tropical Life* (London), "is reckoned to cost his *patrão* quite £100 by the time he stands up under the trees to tap them after the *mateiro* has marked them out. Here, again, there is another £5,000 (fifty tappers, one to each *estrada*, at £100 each) to be disbursed before we can start working. . . . According to Labroy's report, the average *estrada* gives 200 to 300 kilos annually."

A large proportion of the cultivated or "plantation" rubber is grown in the East Indies. In the Federated

Malay States, according to the *India Rubber World* (New York), from which much of the data used in this article is derived, there were 734 rubber estates in 1913, comprising 830,078 acres of ground, of which 433,324 acres were planted to rubber. During that year 53,131,904 pounds of crude rubber were exported.

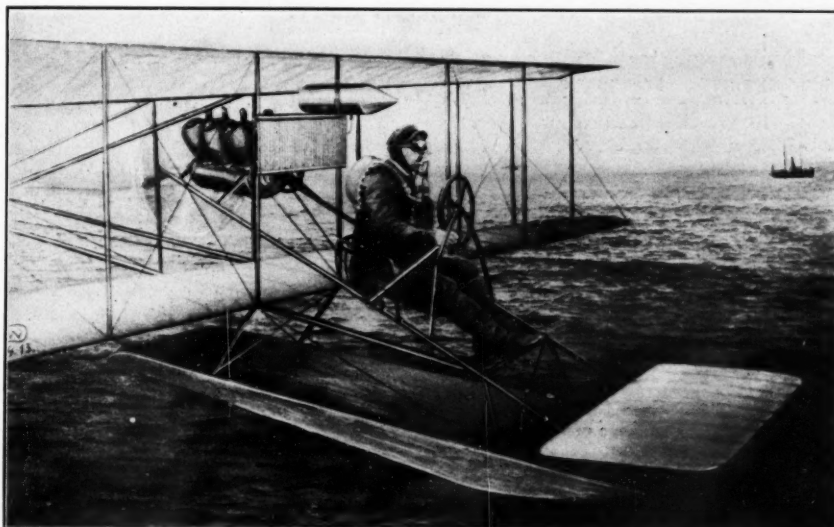
The fall in the price of rubber has made it necessary for plantation companies, particularly in the East Indies, to study their production costs carefully, and well-situated estates are now able to place their produce on the market at an all-in cost of less than one shilling (24 cents, United States currency) per pound. The lowest figure that has been reached in Sumatra is 31 cents, United States currency, per pound. The estimated yield of the producing plantations in the Federated Malay States for 1913 was 275 pounds per acre, and 201,207 laborers were employed.



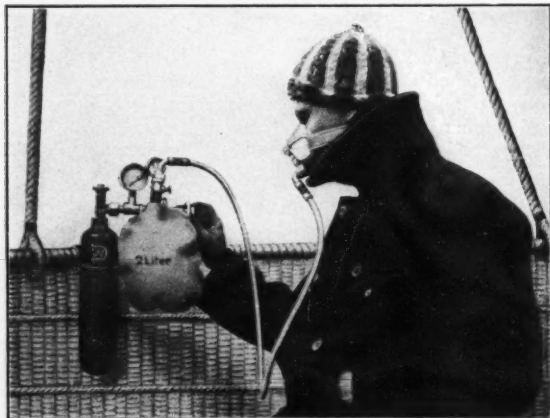
Deep sea diving is dangerous work, but there are men who have followed it many years without accident

America's annual imports of crude rubber amount to about half of the world's production. Some of this is exported in its original state, but by far the greater part is employed in the manufacture of a great variety of articles for domestic consumption. The largest consumption of crude rubber is in the production of solid tires, pneumatic casings and inner tubes for automobiles; tires for carriages, bicycles and motorcycles; tire reinforcements and accessories; rubber belting and hose; rubber boots and shoes; hard and soft rubber goods, and rubberized cloth and clothing. In detail, the list includes automobile top material; air cushions and mattresses; rubber bands;

Appliances made of rubber have added much to the safety of aviation. The illustration shows the pilot of a German seaplane protected by a combined high flight and submarine respirator



bath brushes; bumpers; card cloth; carriage cloth; collars, cuffs, etc.; rubber-covered wire; diaphragms, discs, dip rubber goods, including gloves, finger stalls, balloons and other specialties; doormats, dress shields, ear cushions; erasers; fountain pen fillers; friction cloth; horseshoe pads; gaskets; hard rubber bowling balls; hard rubber razor handles; hospital sheeting; house balls; insulating paint and tape; fruit jar rings; oil well caps; rubber lin-



This respirator, for high altitude flights in dirigibles, enables the aviator to breathe comfortably in rarefied air

ings; sheet rubber; shoe soles and heels; specialties for plumbers, and for the drug, surgical and dental trade; toys, water bottles, and many other products.

In 1909 (the latest Government figures available for this industry) the total value of articles manufactured from rubber was \$128,435,747. That this has increased enormously since then is indicated by the estimate, based on figures given out at a recent automobile show in Boston, that the New England States, with a population of about 7,000,000, will spend this year for automobile tires \$17,000,000, and for other accessories \$4,500,000. In 1914 the combined purchases of tires and accessories in this part of the United States amounted to \$18,100,000. Recently one automobile manufacturer in Detroit purchased 137 carloads of tires, while a large bicycle manufacturer placed a single order for 76,647 pairs of bicycle tires.

Akron, Ohio, is the largest center of the rubber manufacturing industry in the United States. Stocks of crude rubber on hand in the storehouses there are said to be worth, at the present time, about \$10,000,000. Unusual buying has been going on as a result of war uncertainties, and never before has so much raw material been on hand at one time.

Some of the larger rubber factories at Akron are small cities in themselves, with populations of from 5,000 to 12,000, provided with all the appurtenances of a modern community—libraries, hospitals, police and fire departments, restaurants, theaters, etc. All the plants are running full time and the output is unprecedentedly large.

The extraordinary conditions under which warfare is being carried on in Europe have created a great demand for atomizers, an apparatus that is produced in a variety of forms by surgical rubber manufacturers. The excessive dampness of the trenches rendered the warmest clothing of little value during the cold months in protecting the soldiers against diseases of the respiratory organs. It has been found that atomizers are effective in keeping the passages of the throat and nose in a healthy condition.

Rubber plays an important part in military aviation. It is estimated that the belligerent nations have more than 5,000 heavier-than-air flying machines in daily use. For the non-rigid dirigibles rubberized fabric must be used on account of its elasticity under pressure.

In addition to the use of rubber in the envelopes, rubberized cloth is used as a weatherproof covering for the car suspended below the dirigible. Rubber in the form of

tubing is used at various points to take the rub of ropes and stays where surfaces are exposed to chafing. Rubber tubing and rubber packing are employed in connection with the propulsive motors and the gasoline feed, and, of course, the crews of navigable airships all have weather clothes of rubberized material.

In the individual aeroplane the wing fabric must be waterproof. Rubber is here a necessity, particularly in the case of the sea-plane or flying boat. In aeroplanes equipped with wireless, rubber does duty in the form of insulation, and in the latest of these military flying machines it plays its part in the telephone system by which the pilot and his passenger can communicate with each other, despite the noise of the propeller, the roar of the engines, the deafening rush of the passing wind and the explosions of shrapnel in the death-filled sky.

The military aeroplanes weigh about a ton each. The air scouts must make their landings when and where they can, no matter how rough the ground. The equipment of the wheels of the chassis with resilient tires of rubber lessens the force of the impact.

But the most interesting contribution rubber has made to aviation is in the mechanisms that make it possible for the aviator to breathe comfortably in the rarefied air of great altitudes. Air pilots are now supplied with small reserve tanks holding compressed oxygen, and the rubber hose leading therefrom, attached to a rubber mouthpiece, is placed over the nose and mouth before the airman mounts skyward. This apparatus also enables the flying man to breathe for a time beneath the surface of the sea when he falls into the water. The same device is used for reviving exhausted aviators.

In short, without rubber, aviation as a branch of military science would cease to exist.

The telephone also plays an important part in war. With this rubber is the insulator—the protecting cloak that



In automobile racing the driver and mechanic talk with each other through rubber tubes

keeps the feeble current within bounds. Speaking from the home, hotel, office, factory or any other structure, rubber shields the current from the instrument down through the building until the connection is made with the outside line. In addition to the use of rubber in wire insulation a very large quantity of friction tape is used for splicing telephone wires and making the necessary joints.

Rubber makes possible the salvage operations of the submarine divers. The garment of the diver is made of solid sheet India rubber between two layers of tanned twill. The cuffs are of rubber and fit tightly around the wrists, making, when secured by the rubber rings, a watertight joint, at the same time leaving the diver's hands free.

Rubber toys are very much in demand, because the child who uses them cannot hurt himself or others, and the toy can be easily cleaned without injuring its appearance.

PITTSBURGH—AMERICA'S GREAT STEEL CENTER

Already the Foremost Industrial City in the World, the War has made Pittsburgh's Armies of Peace more Important than ever Before

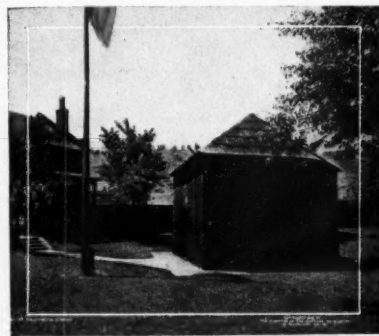
MAJOR WASHINGTON—afterwards the first President of the United States—wrote in his diary about the "Forks of the Ohio." At this point, where the Allegheny and Monongahela Rivers unite to form the noble Ohio, was placed the little frontier outpost destined to become the huge industrial metropolis of today. The first white man to settle in the upper Ohio Valley came in 1748, and in 1753 the confluence of the two rivers

was visited by Major Washington. The following year—possibly at the suggestion of the Major, who may have noted and reported its strategic importance—Capt. William Trent with a force of British soldiers occupied the Forks of the Ohio, but was driven off by the French who

Pennsylvania Railroads were opened, thus giving the city direct rail routes to the seaboard.

After this event the industrial growth of the city expanded so rapidly that it would be tedious to recount the many milestones that mark its progress. In 1869, the manufacture of air brakes began and during the last half century manufacturing establishments of various kinds have located in this district until at present it leads the world in nearly a score of different lines, including pipes and tubing, structural steel and bridge work, wire, brakes, rolling mill machinery, steel cars, tin plate, electrical equipment, pickles and preserves, cork products, white lead, firebrick, etc. Pittsburgh claims to have the largest plants in the world for the reduction of radium and vanadium, and for finishing aluminum, while it is the national center for plumbing supplies. Its steel works and blast furnaces alone give employment to 75,000 men, while its total payroll amounts to \$1,000,000 a day. Altogether metropolitan Pittsburgh has 2,369 manufacturing establishments. As a wholesale and jobbing center it serves a market of 10,000,000 people and does a business aggregating a billion dollars annually.

This remarkable industrial expansion has been due to the fact that beneath and around the city are found the finest bituminous coal in America, the highest grade of oil, and an almost inexhaustible supply of natural gas. Furthermore, the spot upon which the city stands forms one of the best gateways to the West through the ridges of the Allegheny Mountains, while the converging rivers and the long sweep of the Ohio toward the sea afford the city exceptional facilities for the transportation of some of its heavy bulk products, such as coal and iron.



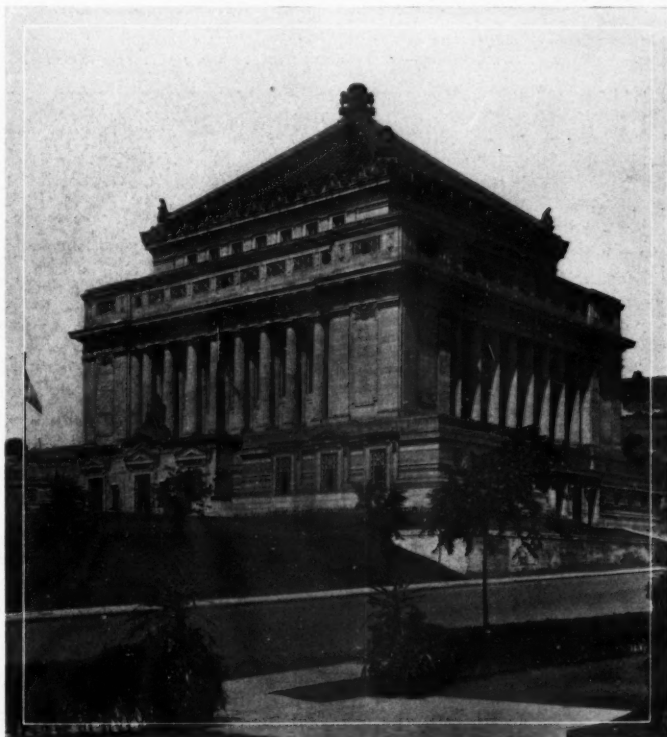
The historic blockhouse at "Fort Duquesne," that was Pittsburgh's beginning

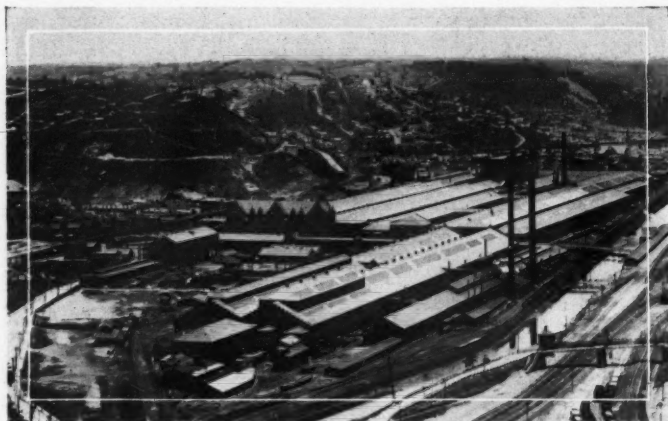
erected a fort there which they named Fort Duquesne. In 1755, a British expedition under Gen. Braddock sought to capture the fort, but was taken by surprise and nearly annihilated by the French and their Indian allies. The English, however, clung doggedly to their purpose, and three years later Gen. John Forbes captured the outpost, re-naming it Pittsburgh in honor of William Pitt, England's great Prime Minister.

It was during this year that Fort Pitt was erected, and in 1764, during Pontiac's insurrection, a blockhouse was also built as a further protection against the Indians. This structure still stands and is the oldest building in the city. It forms a striking contrast with the fine Soldiers' and Sailors' Memorial Hall, considered to be the most beautiful building in the Pittsburgh of 150 years later.

At the time when the English and the French were battling for its possession, no one dreamed of the vast potential wealth that lay quietly sleeping within a ten-mile radius of the Forks of the Ohio. It was not until 1792 that the first iron furnace was erected at Pittsburgh, while the first glass works were built five years later, and when the census of 1800 was taken, the little borough—which had been incorporated six years earlier—had only 1,565 inhabitants. Coal deposits, however, had been discovered as early as the colonial period and this mineral proved the magnet that drew industries in ever-increasing numbers and diversity to the now fast growing community. By 1816, Pittsburgh had been incorporated as a city, so that it is now approaching the centennial of its civic existence. Three years later the first rolling mill was erected. In 1829 communication with the Atlantic Ocean was established by means of canal routes, and in 1852 the Baltimore & Ohio and the

The Soldiers' Memorial Hall is a fine example of Pittsburgh's handsome commemorative and public edifices





The Westinghouse plant, in East Pittsburgh, is but one of that suburb's many huge industrial establishments

In consequence of these advantages the manufactured output of the metropolitan district (ten-mile radius) was reported by the last United States census to be \$578,815,493—a larger sum than the output of any one of 21 States. The huge output of the mills, furnaces and factories of the Pittsburgh district, together with the tonnage developed by the bituminous coal mines, aggregated 177,071,238 tons in 1912—a total far in excess of the combined import and export tonnage of a score of the world's largest ports. Much of the coal finds its way to market by means of huge barges that are towed down the Ohio and Mississippi Rivers to points as far as New Orleans, where it is transferred to ocean carriers.

According to a summary of the city's industrial position compiled by the municipality for the International Congress of Municipal Executives held at London last year the development of the fuels and raw materials that form the bases of Pittsburgh's industrial supremacy has been progressive and continuous. "As early as 1760 the garrison at Fort Pitt and early settlers dug bituminous coal in what is now the business district of Pittsburgh. Pittsburgh coal is pronounced by the United States Geological Survey to be the highest in heat units in the entire country

and in 1912 the Pittsburgh District produced double the output of the States of Ohio and Indiana combined and 9 per cent. of the world's output of all species of coal.

"In 1841, the coke industry was established in the Pittsburgh District and today this district produces within a small fraction of one-half of the entire production in the United States and more than the entire production of Great Britain.

"In 1868, the properties of natural gas in the Pittsburgh District as a fuel for manufacturing purposes were discovered. Not until 1883 was production on a large scale begun. Natural gas in this district contains about 88 per cent. methane and 12 per cent. ethane and has a heating value of 1100 B. T. U. per cubic foot. About 40 per cent. of the natural gas developed in the United States is produced in the Pittsburgh District and territory immediately adjacent.

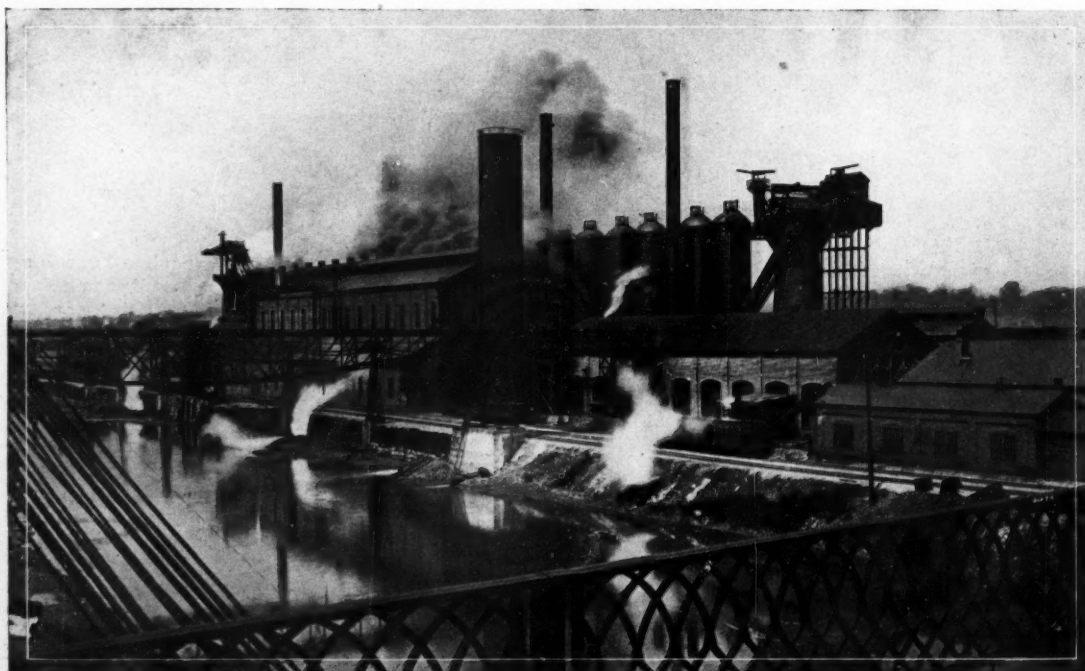
The natural gas produced in this district in 1912 was valued at \$51,888,693. About one-third of this district production is piped directly into Pittsburgh and sold for industrial consumption at a price averaging 14.5 cents per 1,000 cubic foot.

"In 1859, crude oil or petroleum was first produced commercially in the Pittsburgh District. Pennsylvania petroleum is the highest grade in the United States and this year sold for \$2.50 per barrel, the State production approximating 10,000,000 barrels annually.

"With these fuel basics centered at a point of easy and economical distribution, and the prolific iron ore deposits of Lake Superior of easy access, the iron and steel industry of America naturally centered in Pittsburgh.

"In 1792, the first iron furnace was built in Pittsburgh. In 1912, the Pittsburgh District produced 10,001,099 tons of pig iron—a total that exceeds that of any entire nation in the world, save Germany and the United States and represents 66 per cent. of the total German production. The total steel production of the City of Pittsburgh (10 mile radius) was 13,801,560 tons as against 12,233,060 tons for all of Great Britain. These totals include both ingot and finished steel in each case."

Pittsburgh is world-famous as the "City of Steel." Its products cover every phrase of this industry—tubes, rails, beams, bolts, rivets, machinery—and are exported to every part of the world. One of its huge steel plants is here shown



Now that the steel centers of Europe have turned their energies and resources to the production of war material, Pittsburgh is more important than ever to the nations where peace still prevails and the legitimate demands of normal industry and commerce still have to be met. Orders for steel rails, bridge work and structural steel, and for steel in a thousand forms for further manufacturing, are now coming to Pittsburgh from many of the neutral countries, and will come in constantly larger volume the longer the existing situation lasts. For this reason those in distant lands may be interested in learning what sort of a city it is that has grown to such tremendous proportions at the "Forks of the Ohio."

By no means all of the city's interest is centered in its vast mills and factories. Last year the people of Pittsburgh appropriated more than \$15,000,000 for public improvements, and are planning to spend \$50,000,000 in the development of civic centers. One of these has already been created at Schenley Farms, where public-spirited citizens have vied with the municipality in creating one of the finest groups of public buildings in the world, the cost of those erected thus far aggregating more than \$50,000,000, while eventually the investment in this section will amount to double that great sum. Here is situated the imposing Soldiers' and Sailors' Memorial Hall, which was completed in 1909 at a cost of \$1,650,000. The building is in the form of a huge mausoleum, built of sandstone. The interior is lighted with thousands of incandescent electric lamps embedded in the ceiling, which is covered by colored glass, thus giving a soft glow instead of direct illumination. The famous Gettysburg address of President Lincoln stands above the stage in raised bronze letters. Another important group of structures in this district is the Carnegie Institute of Technology, founded by the Pittsburgh ironmaster in 1900. Frequent enlargements have been made until at present the institution comprises eight fine buildings costing \$4,000,000, while the donor has also provided \$7,000,000 as an en-



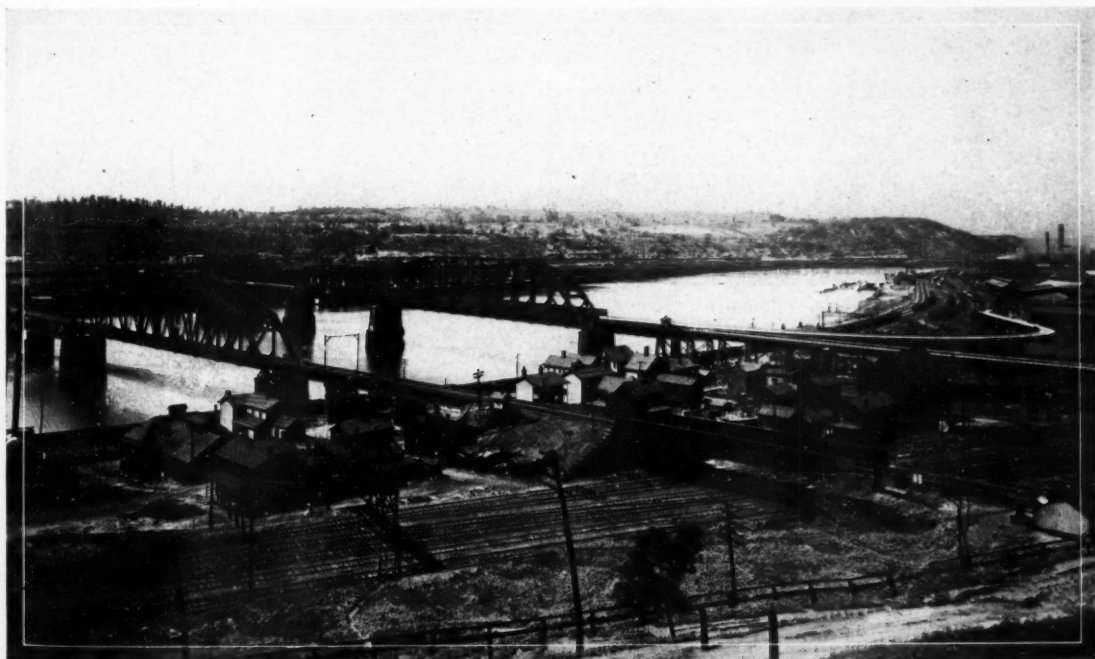
The great fleets of coal barges are among the picturesque features of the river traffic around Pittsburgh

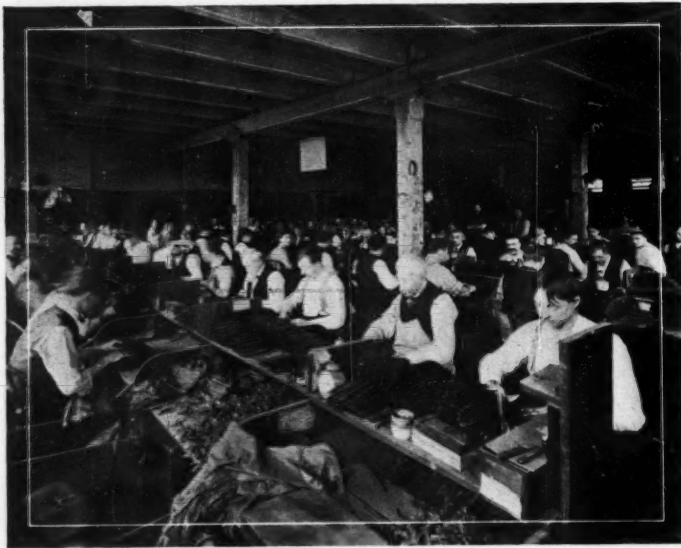
dowment fund. More than 3,000 students attend this school, coming from 37 States and 21 foreign countries.

In the same district are located the buildings of the University of Pittsburgh with its campus of 43 acres. This institution has 2,600 students. Connected with it is the Mellon Institute for Scientific Research. Here also are situated the fine buildings of the Carnegie Institute, the Pittsburgh Athletic Association, the Concordia, University and Twentieth Century Clubs, the Masonic Temple, the Hotel Schenley and many other notable structures.

According to the corporation tax division of the United States Treasury Department, the 23rd Revenue District of Pennsylvania, of which Pittsburgh is a part, has a larger number of incomes over \$100,000 than any other district in the United States, New York coming second. There are also 750 persons in this district having incomes ranging from \$50,000 to \$100,000, 1,500 whose incomes are between \$20,000 and \$50,000; and 17,500 whose incomes range from \$3,000 to \$20,000. No other city in the United States, or in the world for that matter, has produced so large a crop of millionaires, and the golden stream shows no signs of diminishing. On the contrary, the industries of Pittsburgh are vaster, its mercantile

This illustration shows what is said to be the greatest center of industrial tonnage in the world—the Edgar Thomson Works of the Carnegie Steel Company, East Pittsburgh





Pittsburgh "etogies" are smoked the world over. The annual output of 2½ tobacco factories exceeds 200,000,000

district more substantial and stately, its far-reaching transportation interests and connections more perfect every year. It is characteristic of Pittsburgh that every one of its financial, industrial and mercantile magnates was self-made, or the son of one who laid the foundations for his fortune literally with his own hands. All are workers, and proud of it. And, with few exceptions, the second and third generations are devoting their wealth, their time and their labor, to the further up-building of the great enterprises with which their family names have become associated, and to the improvement and beautifying of their native city.

In the early history of the steel industry, in which were built up more great fortunes than in any of Pittsburgh's many other lines of industrial activity, trade conditions caused enormous fluctuations in prices and profits. In periods when demand was slack and the product piled up at the furnaces, prices fell steadily week after week, often going below the actual cost of production. Then came a turn in the tide, with sharp rises until the steelmasters were able to ask advances that wiped out all their previous losses. Such cycles oft repeated seemed to make the normal history of the iron and steel trade at that epoch.

"The uncontrolled iron and steel market," writes Prof. J. Russell Smith, of the Wharton School of Commerce in the University of Pennsylvania, "can make these wild rises that are unknown to so many commodities because it is difficult to suddenly increase the amount of manufacture in response to sudden demand, and more especially because the products are the raw materials of other industries. A thousand industries must have iron or steel or they cannot go on. A wave of prosperity sends them all clamoring—begging for steel. These aggressive, insistent importunities rapidly advance prices. If necessity presses him, the machinery manufacturer can increase the price of his iron purchases by a much greater percentage than it is necessary for him to charge on the finished product because his other costs are unchanged.

"Thus, in the time when each process was usually an individual enterprise, the iron industry of America was really a string of independent yet mutually interdependent enterprises, which necessarily co-operated and yet competed, eternally pushing and

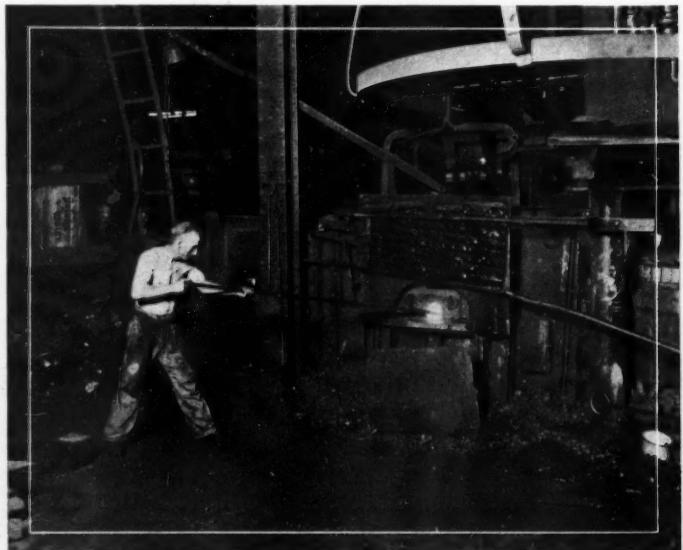
jostling one another in the strife for the best share of fluctuating profits which was taken from the purchasing world by the sellers of the finished product.

"When the American iron and steel industry first spread itself over its present geographical area, its elements were as follows: The operator of an iron mine on the shore of Lake Superior sold his product through a commission man. It was shipped on an independent railroad to the lake shore, was dumped in the hold of an independent steamer, unloaded at the lower lake port at the dock of an independent railroad, which carried it to Pittsburgh or vicinity, and dumped it down in the ore pockets of a blast furnace. The management of the blast furnace also bought coke from an independent coke maker, who shipped it over an independent railroad. The limestone for flux came from an independent limestone producer who shipped over another independent railroad. The pig iron of this blast furnace was sold to a steel maker, the steel maker burned the carbon out of the pig iron thus converting it into steel, which he rolled into billets

and sold to the nail makers, the wire makers and many others of the large class of steel finishers.

"These people bought feverishly at high prices in times of prosperity, or they bought not at all in periods of depression. Each of the dozen or so of purveyors of raw material that finally produced these profits or losses in the form of the steel billet knew that he was in an uncertain business, helping along toward final profit or loss of the steel seller. If the blast furnace man could beat down or hold down the price of his ore, it put money into his pocket. If he could force up or hold up the price of iron it was more money in his pocket, but conversely the same sentiments animated to strenuous action the sellers of coke and the freight managers of railways and steamship lines, so that the whole iron and steel world was in one continuous period of ferment. At the end of a period of depression all prices would be down to rock bottom. Up would go the price of steel billets, and the blast furnace maker, seeing the profits of this customer, would strive diligently and speedily to force up the price of pig iron. His suddenly increased profits in turn prompted the activities of the coke seller, the limestone seller and the ore seller to exact higher prices from the furnace owner,

Many thousands of men are employed in the vast steel mills of Pittsburgh. The illustration shows a "puddler" at his work



and the railroad companies and the steamboat companies seeing the greater richness of their freight did their best to extract their share of the now golden stream, and in the course of months or years the wave of high prices that started at steel billets would finally reach its limits in the quarries and mines of Pennsylvania and the ore banks of the cold Northwest. But scarcely could this level be attained before some reduction of price at the far end of the line would start the steel billet user to hammering back upon his suppliers for lower prices or he would cease to buy. So waves of prosperity and waves of depression continually ran like an epidemic through the jostling units of the iron and steel world, so that each man's hand was constantly against his neighbor.

"Out of this chaos was born integration—the producer of order and of profits. In place of industrial war ensued a period of industrial peace."

The story of how this epoch-making change was effected belongs not to Pittsburgh only, but to the financial and industrial history of the United States. It was, however, in Pittsburgh that the fundamental factors in the new alignment of the iron and steel industry were worked out. It was a group of Pittsburgh ironmasters who solved what was then the greatest economic problem of the day. Then, as now, the steel trade was looked upon



Pittsburgh's ironmasters have given it many magnificent buildings. The lobby of the Carnegie Institute is here shown



There are many great and splendid breathing spaces around Pittsburgh—like Highland Park, whose entrance is pictured here—where the gigantic toil of its huge industries seems very far away

This fine building of the Pittsburgh Athletic Association is an example of the attention that is given to wholesome recreation



as the barometer of business conditions, but to-day the barometer fluctuates far less wildly, and the foundations upon which America's greatest single industry rest are far more secure.

Pittsburgh was once known as the "Smoky City." Owing to the vast quantities of coal consumed by the huge mills and the hundreds of locomotives used by the railroads in the transportation to and fro of raw materials and finished products, the city used to be obscured by day by the cloud that rose from its own industries. This was partially lifted when natural gas began to be used extensively as fuel. It has been still further lessened, of late years, by the co-operation of the railroads, the manufacturers and the municipality. To-day Pittsburgh's skies are clearer than those above many other cities of far less industrial importance.

The work of smoke elimination is directed by an advisory board, appointed by the mayor of the city, consisting of four engineers of recognized ability and integrity who have had experience in the construction of steam power plants and metallurgical furnaces, and who are especially qualified for the performance of their duties. As a result, in every industry, particular attention is being paid to the instruction of firemen, the use of mechanical stokers, etc., so that better fuel combustion with less smoke is secured.

THE PAN-AMERICAN FINANCIAL CONFERENCE

One of the Most Important Assemblages Ever Held in the United States for the Improvement of Trade in the Western Hemisphere

THE Pan-American Financial Conference, which was held in Washington, May 24-29, and was followed by the delegates making a tour of the principal cities of the United States as far west as St. Louis, was one of the most notable gatherings of the sort ever held in America. It was attended by delegations from all the countries of Central and South America, and addresses were delivered by the President of the United States, the Cabinet officers, leading American bankers, manufacturers and business men. Important steps were taken toward the establishment of plans to improve the trade between the United States and Latin-American republics. A detailed report of the proceedings would fill a large volume, but an idea of some of the topics discussed may be gathered from the extracts of speeches and reports that are given here.

The President of the United States, in welcoming the delegates, said in part:

"I am sure that those who have this conference in charge have already made plain to you its purpose and its spirit. Its purpose is to draw the American republics together by bonds of common interest and of mutual understanding. There can be no sort of union of interest if there is a purpose of exploitation on the part of any person connected with a great conference of this sort. The basis of successful commercial intercourse is common interest, not selfish interest. It is an actual interchange of service and of values; it is based upon reciprocal and not selfish relations. It is based upon those things upon which all successful economic intercourse must be based, because selfishness breeds suspicion, suspicion, hostility, and hostility, failure.

"We are not, therefore, trying to make use of each other, but we are trying to be of use to one another. If there is any one happy circumstance, gentlemen, arising out of the present distressing circumstances of the world, it is that it has shown us what it means to be neighbors. And I cannot help harboring the hope, the very high hope, that by this commerce of minds with one another, as well as commerce in goods, we may show the world in part the path to peace. It is the knowledge that men can be of the greatest service to one another and nations of the greatest service to another when the jealousy between them is merely a jealousy of excellence and when the basis of their intercourse is friendship. There is only one way in which we wish to take advantage of you and that is by making better goods, by doing the things that we seek to do for each other better, if we can, than you do them, and so spurring you on, if we might, by so handsome a jealousy as that to excel us."

So that each country might have the opportunity of discussing its particular problems with the utmost frankness and freedom, the plan of dividing the delegates of the United States into eighteen committees was adopted. One committee was assigned to each of the countries represented in the conference. This brought about a series of group conferences with bodies of American representative bankers and business men. Among the subjects considered in these group conferences were: Public finance; the monetary situation; the banking situation; the financing of public improvements and of private enterprises; the extension of inter-American markets; the merchant marine and improved transportation facilities. At the general sessions of the conference the three great subjects of common interest—finance, commerce and transportation—were considered.

The specific subjects treated of in these group conferences were of unusual interest. Cuba and Salvador, for example, discussed the possibility of reciprocity treaties with the United States; a new treaty to take the place of the present one in the case of Cuba, and a first treaty in the case of Salvador. Cuba also discussed tobacco and sugar conditions and tariffs, and Salvador urged the establishment of an American bank.

Bolivia urged the necessity of investments to develop its tin mines and railroads. Nicaragua recommended that American merchants grant longer terms of commercial credit and discussed the building of a railroad from one of the ports of the Lake of Nicaragua to the Atlantic.

The Costa Rican delegation discussed the needs of public service companies, and particularly the financing of public improvements. The Paraguayan conference related to

obtaining a loan for putting the Government on a sound money basis. Peru discussed the consolidation of its foreign debt and the special banking needs of that republic. In the Chilean conference subjects of general importance were discussed, and Argentina was particularly interested in the merchant marine. Members of the Argentine delegation declared that the situation of their country regarding steamship facilities reaching ports of the United States was more pressing than that of any other country.

Secretary of Commerce Redfield, in speaking of terms of sale of merchandise, deprecated the practice of exacting cash in advance or against documents even when dealing with concerns of undoubted responsibility. In the course of his remarks he said:

"There are, as every business man knows or may know, houses in every important city in the world a debt from whom is a good asset, and with reasonable care American business concerns should be, and many are, willing to sell on open account as they do at home. The extending of long credits, concerning which much is said, seems to me, however, a function rather of the banker than of the manufacturer. The latter is himself the victim of short credits. He must pay immediate cash for his labor and often for his materials. If he under these conditions is to sell on very long credits he must be paid for so doing in the prices that he must charge. Long credits, therefore, do not permit cheap goods for the buyer, but the reverse. The manufacturer who can close an account quickly and proceed to another transaction can afford through the rapid turnover of his funds to sell at a margin impossible for him who by reason of long credits must do business on a more extended and more costly basis.

"On the other hand, it is of course true that the solvent merchant who may not be able to afford cash with documents for goods, which may be weeks in reaching him, may still have credit amply good to warrant advances on the part of a banker to pay for actual merchandise from which when sold the seller will receive more than sufficient to repay the loan. The more normal process of trade, therefore, would seem to be not for the buyer to call upon the seller to grant long terms, with the corresponding disadvantage in prices, but for the banker to intervene, and seeking only normal interest on sound loans to carry the transaction over from the seller to the buyer in such wise as to be a burden to neither while profiting himself for his useful service.

"There is, however, another side to this whole matter. Just as it is true that some houses prefer to buy cash against documents, so it is true that there are large houses among our industries that are willing to sell on long terms. At this point, however, comes in another principle, which is quite as important as that either of prompt cash or long time, and this is the principle that, however payment is to be arranged, it should be the absolute standard of practice that it should be made just as it is arranged. If we must plead guilty in part to such ignorance of credits abroad on the part of some of our sellers as induces them at times unwisely to demand cash against documents, it is also true that sometimes our sellers who have extended the longer credits demanded have not received payment at their maturities. What is essential seems to me to be the carrying out of the transaction with equal accuracy in all its forms. If the buyer desires goods shipped by a certain steamer on a certain day he should himself be prepared to make his payment with similar certainty. If this one thing were done a serious difficulty would immediately disappear from our mutual transactions. It is so evidently sound that I venture to hope the influence of those here assembled may be exerted strongly and continuously in its favor."

Speaking of the lack among North Americans of the more gracious and formal manners of speech and correspondence that is such a pleasant characteristic of our neighbors to the southward, Secretary Redfield said:

"There is, I venture to think, sometimes a tendency in other lands to regard us as ill-bred because of this assumed brevity of speech, or because of certain characteristics of language or of manner that seem, to say the least, peculiar to people accustomed to staterly ways of intercourse. I have no doubt that this conception has wrought a double harm. It has upon the one hand led to a misunderstanding of the genuine spirit behind the brusque words and actions, and upon the other hand to a misapprehension on our part of the value of the courtesies which make life both tolerable and comfortable. For my part I am willing to agree that we have much to learn in the amenities of commerce. I only plead for my countrymen concerning this, that they are kindlier, more genuine, more sincere and altogether more worthy than they may seem to be when projected against a background to which they have had no opportunity to be accustomed.

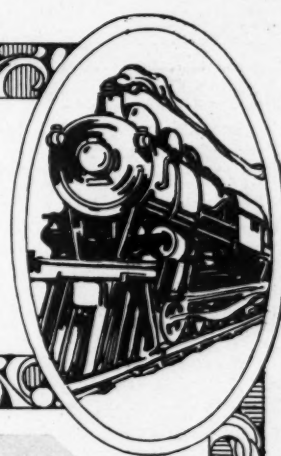
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Scenes

OF WORLD-WIDE

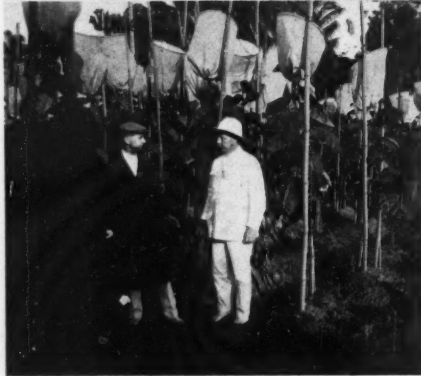
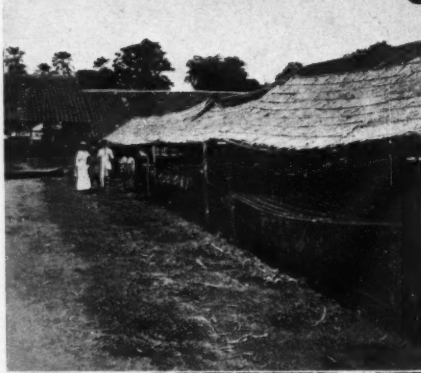
INTEREST



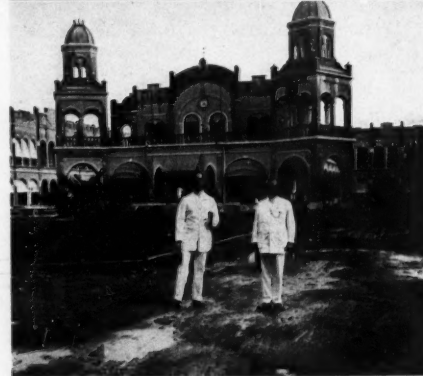
Temple in Bali, an island in the Malay Archipelago immediately east of Java. It is 75 miles in length and 40 in greatest breadth. This is the only island in the Malay Archipelago where Brahminism is the prevailing religion. Bali contains a number of petty states that are governed by the Dutch. Two mountain chains traverse the island from east to west. The island is abundantly supplied with water. The principal products are rice, coffee and tobacco. The people are of Malay stock, with a written language of their own, called Balinese

This and other Java photos on pages 50, 51 and 52 loaned by the Indian Trading Company, Rotterdam and Soerabaya





In the tobacco district of Java



Street scenes in Soerabaya, Java



Java is one of the most picturesque regions in the world owing to its luxuriant vegetation



The village green in a typical rural community in Java has changed but little in centuries



In the Island of Bali, near Java, much coffee is raised by the native planters



A mountain view in the Island of Bali. The peaks are lofty and mostly of volcanic-origin



The Peak of Corcovado, two miles from Rio de Janeiro, rises to a height of about 2,000 feet



Botafogo, on a bay communicating with the Bay of Rio, is a residential suburb of the Brazilian capital



The Avenida Rio Branco, the principal street of Rio de Janeiro, is one of the most magnificent thoroughfares in the world



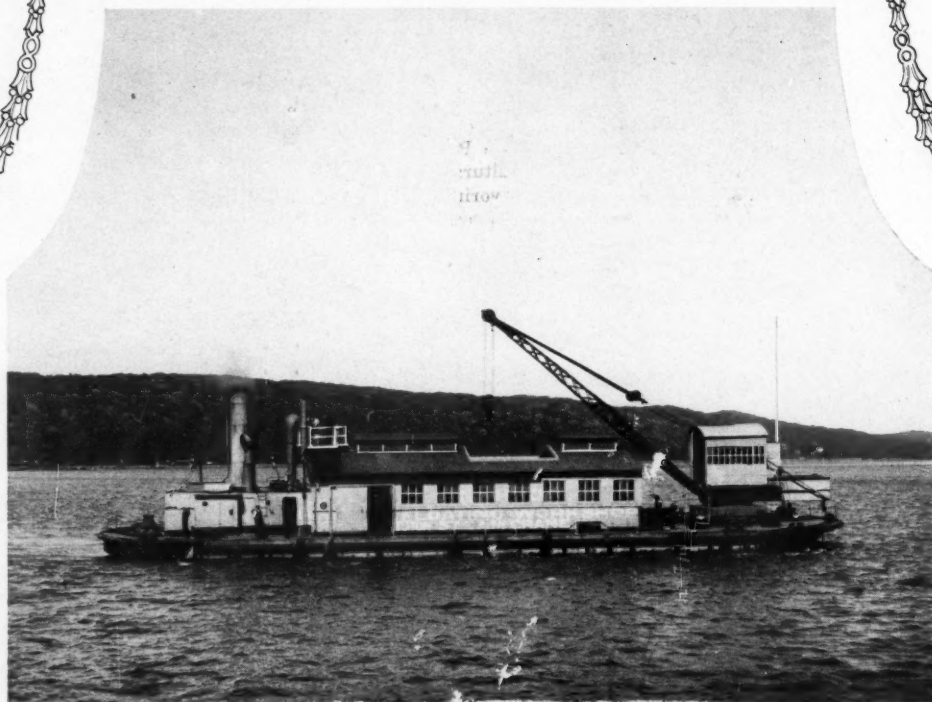
Another view of the Avenida Rio Branco, showing street life at midday in the Brazilian capital



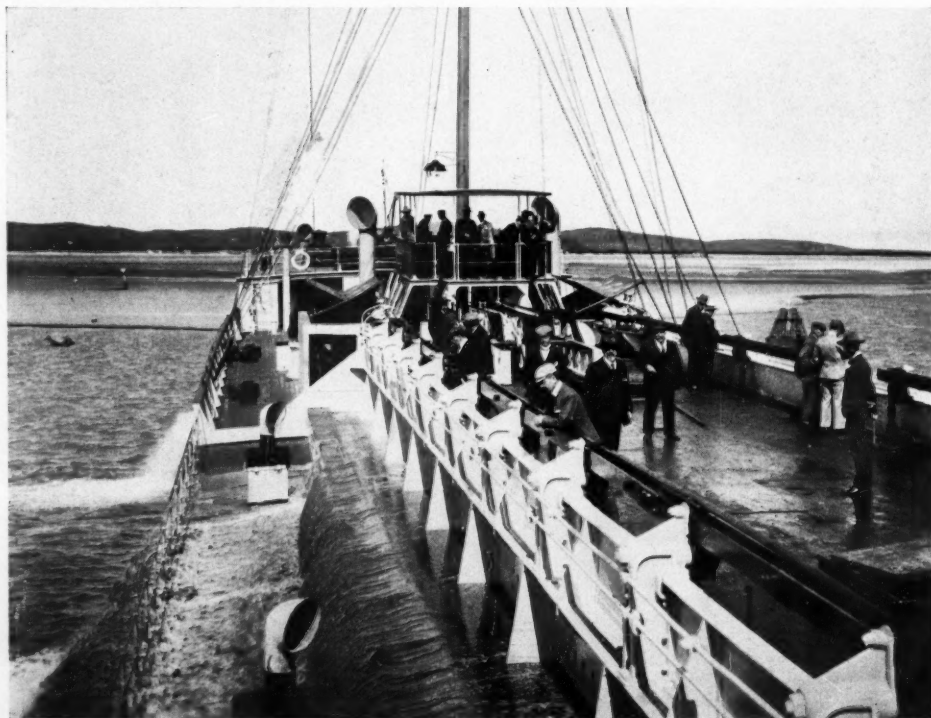
São Paulo is the capital of the State of the same name. The railroad station is here shown



The municipal theater at São Paulo, Brazil, is one of the handsomest in Latin America



Floating workshop with electrically driven machinery and 15-ton crane at Port Natal



Official trial of a new dredger of 3,000-ton hopper capacity in the inner harbor of Port Natal

THE CHINESE TRADE COMMISSION

Its Recent Visit to America Results in Establishing Closer Financial and Commercial Relations Between the Two Countries

THE Honorary Commercial Commissioners of the Republic of China, who recently made a tour of the United States, comprised eighteen prominent merchants and manufacturers. They traveled under the auspices of the Associated Chambers of Commerce of the Pacific, studying America's financial, commercial, agricultural, industrial and educational methods, and endeavoring to promote trade between China and the United States.

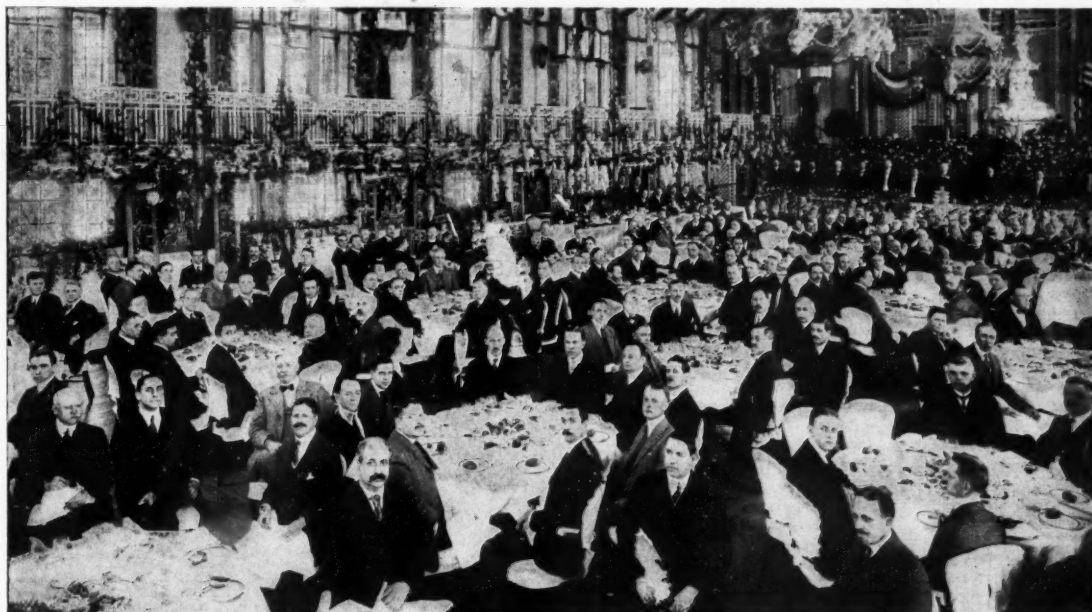
The Commission reached Washington, D. C., May 26, and were received by the President and his Cabinet. After stopping at Philadelphia, they arrived in New York City June 1, and remained there until June 8, when they resumed their journey and visited other great commercial and manufacturing centers of the country.

The Chairman of the Commission is Cheng-Hsun Chang, one of the most influential business men in China. He has branches of his business in the Straits Settlements,

During the Commission's eight days' stay in New York, they were the guests of honor of the city and of the city's business men. The latter were represented by committees from The Merchants' Association, Chamber of Commerce, American Asiatic Association, and American Manufacturers' Export Association.

At the luncheon given by the last named Association, on the day of the Commission's arrival in the city, the visitors were welcomed officially by Kai Fu Shah, Chinese Minister to the United States, and William C. Redfield, Secretary of Commerce. In the course of his address the Chinese Minister said:

"China is proud of her friendship with America. We want to trade with you. Send American salesmen to China. If possible, send men who can speak the language. In this way those who collect profits from both buyers and sellers can be eliminated. You should also learn as much as possible of Chinese customs, conventions and psychology as an aid to advertising. The same



Luncheon tendered to the Honorary Commercial Commission of the Republic of China by the American Manufacturers' Export Association at the Hotel Biltmore, June 1, 1915

Sumatra and Java, and has a large winery at Chefoo. He is a member of the National Council in Peking, and of the Chamber of Commerce at Canton. The other members of the Commission were:

Chi Cheh Nieh, vice-chairman, a cotton manufacturer, proprietor of the Heng Foong Cotton Manufacturing Company, director of the Cotton Mill Owners' Association, and a representative of the Chinese General Chamber of Commerce in Shanghai; Lim-Pak Chan, proprietor of the Ceong Chan Exporting Raw Silk Company; Sheng Chen, manufacturer of lacquer and cloisonné, representative of the Peking Chamber of Commerce; Li-Chi Chu, secretary of the Chinese General Chamber of Commerce and of the Shanghai-Nanking Railway; Yen-Pei Huang, vice-president of the Educational Association of Kiangsu Province and ex-commissioner of education; Sing-Ming Kung, director of the Hui Chang Machine Manufacturing Company of Shanghai; James H. Lee, importer and exporter of electrical machinery; Huan Yi Liang, president of the government lead mines and smelting works; Hsieh Yu, director of the Hulchow Tea Trade Union of Shanghai; Chao-Hsin Pian, cotton merchant, representative of the Tientsin Chamber of Commerce; Kuan-Lan Sun, manager of the Tung Hai Agricultural Company; Chai-Chang Woo, senior secretary of the Ministry of Agriculture and Commerce in Peking; S. C. Thomas Sze, coal merchant; Kwong Wong, shipbuilder, and David Z. T. Yui, Executive Secretary Lecture Department, Y. M. C. A. of China.

advertising methods used successfully in America are often futile, or worse than futile in China."

At a luncheon tendered by the Members' Council of the Merchants' Association of New York, at which about 1,500 were present, Cheng-Hsun Chang, the Chairman of the Commission, spoke in Chinese, but was interpreted by David Z. T. Yui, the lecturer and secretary, a graduate of an American University, who said in part:

"It is Mr. Chang's opinion that in order to develop the trade and commerce between your republic and our republic two things are essential. The first is that we must have greater banking facilities; the second is that we must have a direct, or several direct, steamship lines between your seaports and our seaports, for, if we are going to promote the trade and commerce between you and us, if we are going to extend and expand our business relationships, we must be able to carry cargoes and merchandise in ships that will fly your national flag and our national flag."

Among the other speakers was Willard D. Straight, of J. P. Morgan & Co., who said in part:

"As to the future of China I have no question. It was my privilege to live there for a number of years. It was my privilege to have many friendships with Chinese officials. I heartily indorse all that has been said about the direct way of doing

business. I remember when looking over the first loan contract I could not understand its simplicity; I had never seen anything like it. I asked whether a lawyer had been employed. They said, "Not at all, it was not necessary." All they did was to write down the general principles, relying upon mutual good faith, mutual consideration, to arrive at a satisfactory settlement.

The future of China, it seems to me, lies in the unification of the Chinese people, the development of railways, the development of communications of all sorts, the development of Chinese world commerce. With 400,000,000 industrious, sober, intelligent people, it is impossible for any of us to believe that that future will not be a brilliant one; we only have to look back in history and see all the Chinese accomplishments in the past to know that when the people find themselves it will be impossible for any alien nation ever to dominate China; and in that development, in which I myself sincerely believe—I trust and I believe that you all feel as I do—that American merchants and manufacturers and bankers may participate to the benefit of China and to our own profit."

Subsequently the Commissioners were the guests of the Chamber of Commerce of the City of New York at their monthly meeting. During their stay in New York the Commission visited many of the great mercantile and industrial establishments in and near the city.

THE PAN-AMERICAN FINANCIAL CONFERENCE

(Continued from Page 48)

"It is frankly recognized that there are readjustments necessary in some of our commercial ideas and methods if we of the United States are to develop our commerce with South and Central America in the most helpful and permanent way. We must learn not so much to offer the things we want to sell as to make and offer those which the customer wants to buy. It is not to be expected that markets in other lands will wish to use the goods which please us here. The mere fact that we happen to like an article of a certain design or color is no reason why any one else should like it. It does not follow at all that because something sells well here, therefore it will sell well everywhere. Some of us must learn to do our business more intelligently in this respect, and I am happy to say that there is a growing, and I think now a fairly general, understanding of this primary fact."

Speaking on the subject of international banking and finance, Paul M. Warburg, a member of the Federal Reserve Board, said:

"We are now able to finance our own imports and exports by the use of American acceptances. More than that, we are in a position to finance the trade of other nations and to play, in this respect, the part of an international banker that has heretofore been played almost exclusively by England. While it is true that Germany and France during the past generation have begun to finance a large portion of their own trade by acceptances of their own banks, the bulk of the business has heretofore been handled by England. There is no doubt that upon the establishment of peace there will be a tendency on the part of many nations to emancipate themselves in this respect, and we may add with profound conviction that it is precisely in this field that the United States will be destined to play an important future role.

"It may be opportune to point out in this connection that the Federal Reserve Act gives ample powers for the development of this business. Member banks may accept and Federal Reserve Banks may discount bills arising out of transactions based upon the 'importation or exportation' of goods. The Federal Reserve Board has been advised by its counsel that the words 'importation' and 'exportation,' as used in this connection, need not be construed as confining these transactions to importations or exportations into or from the United States, but that these transactions may also cover shipments between foreign countries. We shall be in position, therefore, to serve as bankers for all American sister republics, not only in their trade with us but even in their trade with others.

"In order to develop this new avenue of American banking we need not even draw upon the means heretofore employed for the financing of our own problems. The United States has a gold stock amounting to the phenomenal sum of about \$1,890,000,000, of which so far only \$300,000,000 in round figures have been concentrated in the Federal Reserve banks. The Federal Reserve Banks need only continue the process just begun, of substituting Federal Reserve notes for the gold and gold certificates now in circulation in order to gain control of a vast additional financial power which now lies idle. We may confidently expect, therefore, to find ample means to handle this business by the simple process of perfecting our organization and assembling our idle gold.

"The fact that within a few months our banks have been able to accept in the aggregate an amount reported to be in excess of \$120,000,000 permits the conclusion that we have begun on a proper basis and with success. But the test will come when peace shall have been restored and when we shall have to make special efforts to maintain and strengthen our position. It will be one of

the functions of the Federal Reserve banks to assist in the establishment of discount rates for these acceptances low enough to render them effective in securing business."

The following is a summary of some of the various proposals and recommendations made by the delegates representing the different Latin-American countries and the United States bankers with whom they met:

The report of Bolivia reviewed financial conditions, trade and commerce of that country and dealt with the question of railway extension and interior and ocean transportation. It suggested the organization of a central commercial agency in connection with or under the supervision of the Chamber of Commerce of the United States.

Chile recommended the adoption by various countries of legislation to facilitate the drawing of bills of exchange on one another by the financial institutions of South American countries and those of the United States, and the making of bonded warehouse warrants and receipts available as collateral security for the development of international commerce.

Colombia recommended special committees on laws and transportation for each country; the co-operation of those committees in financial and commercial matters; the consideration of the establishment of a general executive council, to meet in Washington at least once a year; and the consideration of the appointment of a board of engineers to investigate projects which require financing.

The report of Costa Rica emphasized the need of trade facilities and the extension of inter-American markets.

The Cuban report recommended the reduction of the import duties of Cuban tobacco in the United States. The Dominican Republic also made a similar request regarding its tobacco.

The suggestions of Ecuador covered the needs and conditions of that country most comprehensively. These were grouped under eleven heads and embraced thirty-two different topics.

The report of Guatemala recommended the practical demonstration in Guatemala of agricultural machinery and tools made in the United States; that the attention of American manufacturers be drawn to the opportunity for the use of portable sawmills in cutting the woods of the country; that the shipment of wares be made in packages suitable to the transportation facilities and requirements of various countries; that more educational facilities be offered in the United States to young men from Latin America.

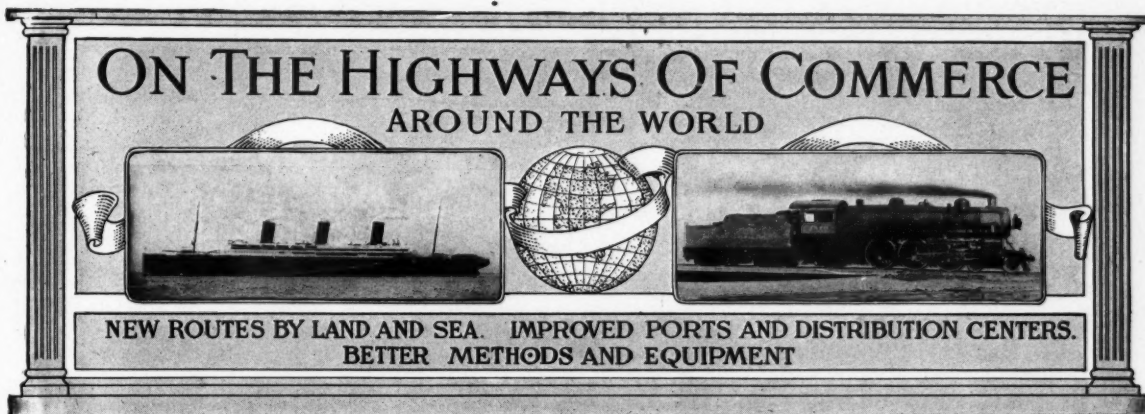
The report of Nicaragua drew special attention to that region as field for the investment of capital. Panama took up certain modifications that are recommended in that country's relation with the Government of the Canal Zone. Salvador desired the establishment of a chamber of commerce, better banking facilities and a wider dissemination of commercial and agricultural information.

Uruguay's report dealt principally with the subject of transportation and the abolition of discriminatory duties. Brazil's recommendations related to the financing of import and export transactions, and recommended that a system of direct exchange based on the dollar unit of the United States be established.

Other countries advocated similar general reforms or changes and all united in the desire for lower postal and telegraph rates and the immediate development of greater means of ocean transportation.

In the latter connection shortly after the conference adjourned, it was reported that a great combination of steamship lines between the east and west coasts of South America and ports of the United States would be one of the first tangible results of the assemblage.

Another significant and immediate result of the conference was a definite business understanding by which bankers of Chicago and the great cities of the Mississippi Valley agreed to extend 90-day credits to the agriculturists of Ecuador, especially the producers of cocoa. This will enable the cocoa and other planters to sell their crops three months in advance, the draft in payment being discounted in the banks of Ecuador.

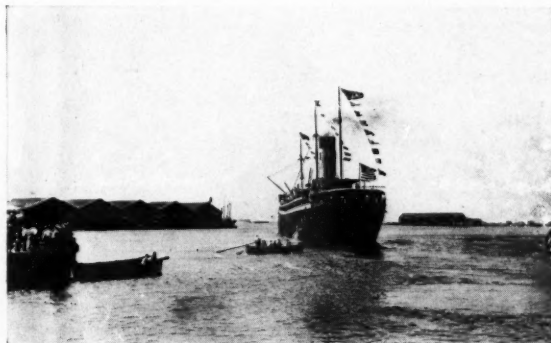


HAWAII'S GROWING MARITIME TRADE

Extensive Dock and Harbor Improvements Attract Shipping to these Islands

By A. P. Taylor, Acting Secretary, Hawaii Promotion Committee, Honolulu

BEFORE the opening of the Panama Canal steamers from New York bound for ports of the Far East seldom called at the Hawaiian Islands. Preparations were begun some years ago, however, by the Federal and Territorial Governments to prepare for the increased maritime commerce that would follow the inauguration of the waterway across the Isthmus. Every port of importance in the Hawaiian Islands was developed and all were ready by the middle of last February for the new trade. The harbors of Honolulu, Kahului and Hilo, on the islands of Oahu, Maui



A trans-Pacific liner leaving the port of Honolulu, or "The Cross-Roads of the Pacific," as it is often called

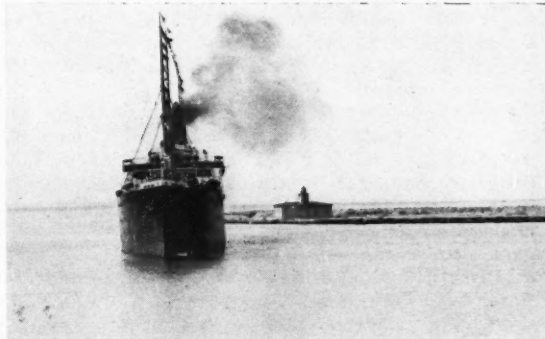
and Hawaii, were widened and deepened, and fully equipped modern wharves were constructed, some of them with concrete piers. Oil pipe lines were laid, connecting the groups of fuel oil tanks with each wharf. The Inter-Island Steam Navigation Company constructed two patent floating coal conveyors—they are now building a third—and also installed a modern coaling station ashore. The floating dry-dock *Hoolana* was also constructed at a cost of \$500,000. It is capable of lifting vessels of 12,000 tons displacement.

In the last four months a number of vessels have made Hawaii, and Honolulu, especially, a port of call for bunker coal, fuel oil and general supplies. Freight steamers take about a month for the voyage from New York to Hawaii, but passenger vessels make the run in half that time. In the holds of the freighters bound from New York to Shanghai, Tien-tsin, Dalny or Vladivostok are heavy cargoes of locomotives, cotton, twine, leather, etc., some of it for shipment via the Trans-Siberia Railway to European Russia.

Honolulu is called "the crossroads of the Pacific." This name, given it many years ago, now has a real commercial

meaning, for in all that ocean there is not another port of the same size that is equally well equipped.

The city of Honolulu is as up to date and progressive as any American town and is as aggressive in its desire for commercial supremacy as New York or San Francisco.



A 20,000-ton passenger steamer entering Honolulu harbor with a party of around-the-world tourists

Its streets are asphalted; there is a complete electric tramway system; its hotels are as well appointed as those of the mainland cities of the United States; its shops are filled with fresh and attractive merchandise. There are some 2,000 automobiles in Honolulu alone, and the smooth island roads are a delight to the motorist.

The climate of the Hawaiian Islands is that of mid-June in the north latitudes. Sea bathing is enjoyed every day in the year. It is only a six-day run for the passenger steamers from San Francisco to Honolulu.

SHORTAGE IN OCEAN CARGO CARRIERS

On Many Leading Routes the Freight Congestion is Resulting in the Establishment of New Steamship Lines

CONSULAR reports from British Columbia are to the effect that the unprecedented demand in Europe for goods and the dearth of vessels to carry cargoes are combining to cause a still further advance in ocean freights from the Pacific Coast of North America. Among recent shipments reported are great quantities of cotton destined for the Russian Empire in Asia via Seattle, Tacoma and British Columbian ports. Several new steamship lines have been inaugurated to carry lumber and wheat from the Pacific Northwest to the United Kingdom via the Panama Canal.

The American Consul-General at Hong Kong reports that the shortage of tonnage for freight across the Pacific from that port and in the coasting trade of Southeast Asia is becoming a serious factor in the general trade situation. Thousands of tons of freight, he states, are piling up in Hong Kong awaiting space in the ships now running, and reports from Shanghai and North China

generally, and from Japan, indicate similar conditions in other parts of the Far East. The shortage of vessels in that part of the world is due to the internment or destruction of the German and Austrian ships formerly engaged in this service, and to the employment in military service of the Canadian Pacific Line of trans-Pacific steamers, a large part of the British India Line serving the coast from Japan to India, and of a large part of the P. & O. and other British commercial vessels that handled the ocean carrying trade from the Far East. In the Philippines there is also a scarcity of tonnage, and much cargo for the United States is said to be awaiting shipment. The local commercial organizations there have asked the authorities to permit the employment of naval colliers and other governmental vessels for the transport of sugar and copra to the United States. These two products are in great demand all over the world at good prices.

"As the result of shortage in ship tonnage the Japanese Government has ordered the Osaka Shosen Kaisha and the Toyo Kisen Kaisha and all other Japanese subsidized steamship lines to cancel all freight engagements from Hong Kong for June and July sailings, and to offer all space for such sailings solely to Japanese ports," says a cable from the American Consul General, Hong Kong, May 28, published in the United States Commerce Reports. The message continues: "The order has created a serious situation in Hong Kong. American trade, including over 2,000 tons of rice, had already engaged shipment for these months."

The acting secretary of the Hawaiian Promotion Committee writes from Honolulu that the financial conditions there are excellent, the price of sugar being high, and the crop large. The tourist travel thither fell off somewhat owing to the war, but is again assuming its former proportions, as these islands, with the opening of the Panama Canal, are now in the direct line of much steamship travel. The harbors at the three principal ports—Honolulu, Hilo and Kahului—have been deepened and otherwise greatly improved so that liners of the type used in the transatlantic trade can now be handled easily.

Within another month Peruvian cotton will be seeking a market, reports the American Commercial Attache at Lima, Peru, under date of April 28. In Arica, the most northern port of Chile, there are at present several thousand tons of cargo that it is seemingly impossible to ship, because the freight is of such character that it can not bear the prevailing rate of 80 shillings (\$19.46) now applicable to European and North American ports. Steamers calling along this coast are able to obtain full cargoes at this rate, with the result that freight that can not stand the charge is left lying here indefinitely. The withdrawal during the past three months of the largest English steamers plying between here and Europe has served to aggravate the scarcity of tonnage caused by the internment of many German steamers.

A consular report from Guayaquil states that large quantities of cacao are detained there owing to the usual steamers having been diverted to other routes.

The first steamship to bring passengers and mails direct from Salvador to New York arrived at the latter port May 1.

It is stated that the Italian Navigation Company, La Veloce, has decided to extend its service to Callao. This company's steamers now proceed as far as Colon, and their extension to Callao, via the Panama Canal, will benefit the large Italian population of Peru which imports great quantities of products from Italy. This company has also decided to establish another service from Genoa to Callao, via the Straits of Magellan. These two lines will afford the Peruvian exporters unusual facilities at this time in finding new markets for such products as wool, coffee, cotton, copper and dried hides, which are much in demand in Italy.

The establishment of a direct line of steamers between the United States and Argentina is being considered by capitalists from the latter republic who are among the

delegates to the Pan-American Conference at Washington. The need of better facilities has been rendered more acute by the war in Europe having closed the door to travel in that direction, and by the desire of many residents of Argentina to visit the United States and the San Francisco Exposition.

A new line will soon inaugurate a regular freight service between New York and Boston and Danish and Scandinavian ports. Six steamers will be employed at the outset.

At a meeting of the Imperial Society for the Promotion of Commercial Navigation, held at Moscow recently, a report was read concerning the establishment of direct shipping communication between Russia and the United States, and it was decided to send a representative of the society to America to investigate the possibility of realizing such a project.

Reports from British shipbuilding centers indicate that commercial construction is practically at a standstill. Boats are said to be standing on the ways months behind their expected date of launching, and boats that have been launched are awaiting completion. Practically every available man in the shipyards is employed on naval work, and as fast as the berths are emptied of merchant ships, warships are being erected on the vacant ways.

In America, on the other hand, the shipyards are filled with orders, and the tonnage of merchant vessels under construction and launched since the beginning of the year has more than trebled. These ships are largely for the account of industrial enterprises or for regular lines. The majority of them, however, are designed for special services.

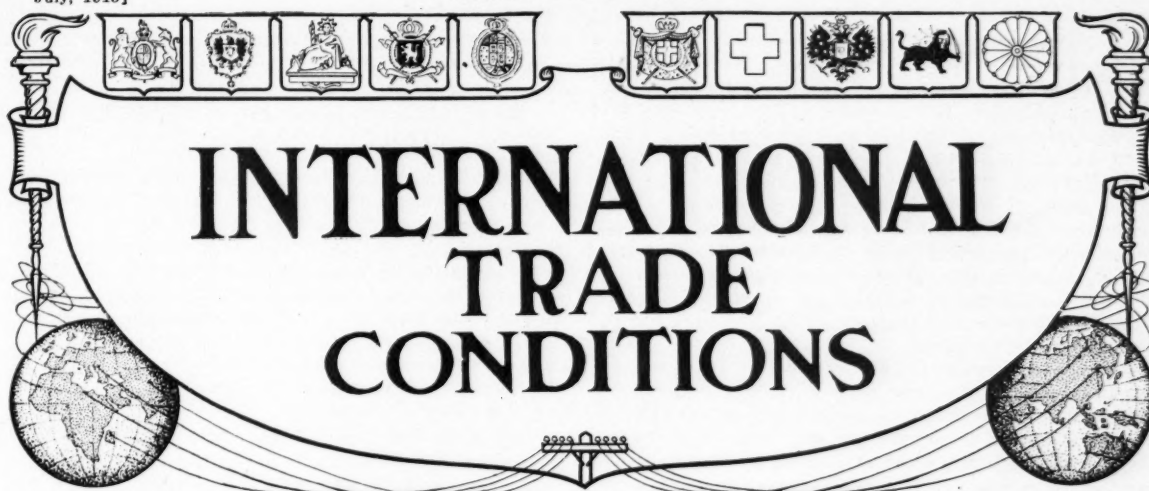
In the ship markets abroad the trade in vessels already in use continues to be more than brisk and indicates that the buyers expect ships to become more and more valuable. Shipowners are compelled to buy new vessels to meet the increased offerings of cargo, and, as a result of competition, prices are rising rapidly. People in Sweden are beginning to complain because so many vessels are being sold abroad. Denmark and Norway, on the other hand, are buyers of tonnage.

The only deterrent factor to the trading in ships is the seemingly remote possibility that the war will end as suddenly as it began, and that this will immediately release the large tonnage of German and Austrian steamers now interned, and also replace on their accustomed routes the commercial fleets now used for military purposes.

Information recently gathered by a New York newspaper showed that 68 German and Austrian merchant vessels are now lying in American ports, ranging from the \$10,000,000 *Vaterland*, of 54,282 gross tons, at New York, down to the little *Neptune*, of 197 tons, at San Francisco. Their total tonnage is 521,080, and their value has been estimated at more than \$64,000,000.

Three ships from South Africa arrived at Boston on May 27 and June 1, carrying wool. These are the first direct shipments of that commodity received at Boston from South Africa for many years. Previous to the arrival of these ships, wool from South Africa reached Boston via England. The vessels referred to were the *Afghan Prince*, carrying 14,681 bales of wool, the *Acadia*, carrying 5,845 bales of wool, both of which arrived the same day, and the *Hyanthes*, carrying 10,965 bales of wool, which reached Boston on June 1. Mr. William A. Haywood, American vice-consul at Cape Town, was on the last-mentioned ship, 29½ days being required to make the journey from Cape Town to Boston.

The British steamship *Roserie* arrived at Boston on June 2, thus completing a "round-the-world" trip which began on December 19, 1914, when the ship in question left New York for Japan and China by the Panama Canal with a full cargo of American products. After unloading its cargo in the countries named the *Roserie* went to Calcutta and Colombo, where it took on hides, tea, rubber, and other merchandise, worth approximately \$1,500,000, consigned to Boston and New York. The vessel returned to the United States via the Suez Canal.



CUBA'S COMMERCIAL AND FINANCIAL OUT-LOOK

General Conditions Improving, due Principally to the Great Sugar Crop and the Good Prices being Realized

IN Cuba, as elsewhere, the outbreak of the war last August threw the commercial and financial interests of the country into temporary disorder. Cuba had been a large buyer of merchandise from England, Germany and France, purchasing on longer terms of credit than were offered in the United States. The closing and disarrangement of Cuba's European sources of supply made it necessary to form new connections. As the Cuban merchants who had been trading with Europe were less well known to manufacturers, wholesalers and commission houses in the United States, their first purchases had to be made for cash or on comparatively short time. Also it was not possible to renew or extend their European obligations, and the payment of these, together with current disbursements for immediate requirements, caused a shrinkage of money in the Island and an expansion of the use of bank credit. In this connection the fourteenth annual report of the National Bank of Cuba, submitted to the shareholders February 17, 1915, says:

"Owing to the general belief that the price of sugar in 1915 and 1916 would be considerably above normal, due to largely reduced production in Europe, an unusual amount of work in cleaning and cultivating the cane fields and planting new cane was done during the months of September, October and November. This work involved a considerable outlay of money, which directly or indirectly came from the banks.

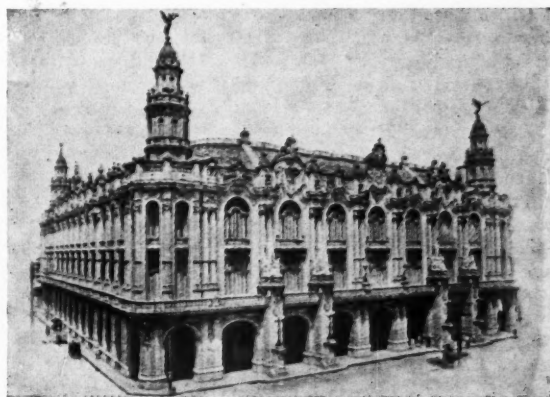
"On the whole, Cuba had an unsatisfactory sugar year in 1914. While the crop was the largest in the history of the Island, having been 2,597,732 tons, as compared with the previous largest crop of 2,428,537 tons in 1913, yet more than half of the crop was sold at an average price of about 2 cents per pound, and the stocks on hand in the early part of August, when the phenomenal rise in the price of sugar took place, were only about 300,000 tons or something over, most of which was in the hands of export merchants and speculators. Of the amount named, about 200,000 tons were sold at prices ranging from 4 to 5½ cents per pound, while the remainder was disposed of at an average price of about 3 cents.

"Estimates made on December 10 by Cuba's oldest crop statisticians placed the present crop at 2,660,286 tons, or an increase of over 60,000 tons, compared with the last crop. At the time the belief was general that there was sufficient cane to produce at least the amount of sugar named, but figures are now being revised and the previous estimate will be reduced, owing to the abnormal rains which have fallen during the entire months of December and January. Notwithstanding the large production of cane, the amount of sugar received at the ports up to

January 31 this year was 312,848 tons, as against 489,903 tons at the same time in 1914, or a decrease of 177,000 tons.

"During the months of August, September and October a large amount of Cuban raw sugar was contracted for by the British Government at prices ranging from 3.80 to 4.02 cents per pound, f. o. b. Cuba. Due to the low yield of the cane and reduced grindings on account of rainy weather, and also in anticipation of new demands from Europe, sugar has risen more than 1½ cents per pound in the last few weeks, and the New York market rules firm at 3½ cents per pound, New York delivery, ex-duties.

"Little if anything of a hopeful nature can be said of Cuba's second crop of importance—tobacco. The tobacco crop of 1914—660,000 bales—was the largest in the history of Cuba. Prices have ruled very low, and tobacco growers,



Gran Teatro Nacional and "Centro Gallego" Building, recently inaugurated after many years of preparation

almost without exception, lost money on their crops. Exports of leaf tobacco during the year 1914 amounted to 314,754 bales, as against 322,121 bales in 1913. Cigars exported in 1914 reached a total of 123,951,118, while the number exported the year previous was 183,234,330. Exports of cigarettes in 1914 reached a total of 13,975,302 packages, as against 18,720,975 in 1913. The value of tobacco and its manufactures exported in 1914 amounted to \$26,353,170, as against \$31,155,907 in 1913. These exports in 1913 amounted to \$3,600,768 less than in 1912.

"The large exportation of low grade leaf tobacco to Germany has been stopped since the beginning of the European war, and orders for leaf and manufactured tobacco from other European countries, with the exception of Spain, have decreased very much. Heavy rains during December and January destroyed about one-half of the crop of Vuelta Abajo and did a great deal of damage in other sections of the island. The crop will be of inferior quality and low prices are predicted. Unsold stocks of leaf

tobacco in warehouses in Havana on January 1 are estimated at 200,000 bales and in the interior at about 117,000 bales, as against 90,000 and 14,000, respectively, on the same date in 1914."

At this writing it is the opinion of sugar experts that the 1915 crop will approximate that of 1914. Prices for October deliveries are 4.18 to 4.20 per pound.

The tobacco industry shows signs of improvement. Exports are still below those of the same time last year, but growers and merchants are of the opinion that the worst of the depression in the tobacco market has been passed.

Regarding general commercial and credit conditions in Cuba, J. Ellis Norris, manager of the Havana office of R. G. DUN & Co., writes:

"Merchants have not yet received the full benefit of the excellent result of the sugar crop now nearing its close.

"Collections are steadily improving, but are not as good as they should be, due to the fact that many planters, instead of paying their merchandise debts, have been investing their money in new cane plantings, because the prospects for high prices for sugar next year are considered excellent.

"More money than formerly is required by the importers in order to do business, as purchases in Europe now have to be made largely on a cash basis instead of on long time credit.

"Houses in the lines of dry goods, notions and groceries claim that their stocks on hand are approximately the same as they were carrying last year at this time. Some, however, express the opinion that stocks carried by wholesale notion importers are somewhat less than formerly, owing to the fact that the bulk of their wants have previously been supplied from Germany and that there is now some difficulty in receiving merchandise from that country.

"Those in the hardware and crockery lines state that they consider their present stocks somewhat larger than a year ago. This is due to their expectation that prices would go up on account of the war having caused them to hasten to place their orders shortly after hostilities began. These merchants add that their principal stocks to-day consist of American hardware, owing to the difficulty which they have experienced in obtaining their current requirements in Europe.

"A few express the opinion that collections are about the same as formerly, but wholesale dealers in Havana are inclined to report that they have felt as yet but little practical result from the heavy sugar crop and the high prices at which it is selling. Others, however, in a general way report that during the last two or three months collections have improved considerably, and all agree that the coming season will be of considerable importance. They claim that Cuba has had three years of unfavorable crops, which, together with the rather unfavorable condition of the Province of Pinar del Rio and a portion of the Province of Havana (the best tobacco districts of Cuba), has helped to make the commercial situation of the Island somewhat unsatisfactory; but that while there is little prospect for immediate improvement in the tobacco districts mentioned above, the outlook for the coming sugar crop is very encouraging.

"It should be noted that the *colonos* (cane planters who work tracts of land on shares) and country merchants were very much behind, owing to the three previous dull years, and that the result of this crop will enable them to clean up their accrued indebtedness and prepare for next season.

"The total sugar crop this season is estimated at about 2,500,000 tons, of which the planters have already ground about 2,200,000 tons."

Other reports that have come from Cuba indicate that planters are inclined toward increasing their acreages of cane considerably next season, which will result, under favorable conditions, in a still heavier output.

Profits of the company which control the Suez canal were \$16,059,800 for the past year. Of this amount \$12,300,000 will be distributed in dividends, which amount to 24 per cent. and the surplus will be \$3,740,000.

TO EXTEND AMERICAN TRADE

The Federal Trade Commission Inquiring into Problems and Competition Originated by the War

THE Federal Trade Commission, which was created by an act of Congress September 26, 1914, and is composed of five commissioners appointed by the President, held sessions in Boston and New York early in June for the purpose of making inquiry into export conditions, with special reference as to opportunities created by the European war for the extension of American trade. These meetings were addressed by many merchants and manufacturers, who gave information and made suggestions of value as to the expansion of the industries of the country. The Commission will report to Congress at its next session, making such recommendations as it deems advisable.

At the first session in New York City Chairman Joseph E. Davies said:

"We are to investigate conditions in competitive nations seeking the same market. The fact that the war has altered the trade courses of the world and has destroyed old markets and created new ones makes it singularly opportune for the Federal Trade Commission to examine into these facts and conditions at the present time."

Different views were expressed by those who appeared before the Commission. One group favored the authorization by Congress of combinations to exploit foreign markets, while another opposed them.

Henry P. Davison of J. P. Morgan & Co. said that in his opinion the development of the American shipping industry was essential to a large increase in the foreign trade of the United States, and that combination would make it possible to cut down costs and effect concentrations.

Another speaker, John D. Ryan, president of the Amalgamated Copper Company, declared that the very size of great corporations enabled them to blaze the way for trade abroad and would benefit smaller firms in other lines desiring to enter the export field. Conclusions arrived at in handling South American trade were set forth by Joseph P. Grace of William R. Grace & Co., exporters and owners of steamship lines, who said that the most important step in building up business with South America was in finding a way to bring American merchandise to the serious attention of the buyer. In his opinion it should be made possible to have each of the best selling articles of American manufacture represented in South America by a traveling specialist so that the product might be properly demonstrated.

Welding Ring, president of the American Exporters' and Importers' Association, gave it as his view that the need of small manufacturers desiring to enter the export field was met by the commission house. William H. Douglas of Arkell & Douglas, commission merchants, said he had found no demand among the small exporters for combinations. He gave it as his opinion that in combinations one or two firms would reap all the benefit, and that great corporations favored combinations because, once established, they would eventually become world combinations.

The Merchants' Association of New York defined its position in a report on existing conditions, obstacles and remedies which was submitted to the Commission. Regarding joint agencies this report said that combinations of manufacturers for the promotion of their mutual interests in the export business had existed in various forms for many years. One, comprising five Philadelphia manufacturers who were not competitors, had united in the publication of joint advertisements intended to reach foreign customers and in other arrangements for the promotion of their mutual interests. The report continued:

In other cases a group of manufacturers have united in the employment of one or more salesmen to canvass foreign markets in the interest of their combined lines of product. While in some cases this plan has been moderately successful, in others it has failed because of the practical impossibility of one salesman becoming sufficiently familiar with the technical details of a number of unrelated lines of product to qualify as an expert in all of them and to present them effectively to customers.

The joint agency, while sound in theory, apparently has not often proved satisfactory in practice. Such agencies have heretofore

usually related to groups of non-competitive manufacturers, and the divergence of the interests thus artificially brought together doubtless has been a reason why such joint agencies have not been more successful and satisfactory. The associations in foreign countries are usually composed, on the contrary, of groups of competitive manufacturers, having like interests and thus constituting each a homogeneous unit. The fact that they are countenanced and even encouraged by the respective countries in which organized implies that they have also been of benefit to the communities in which located and have earned the sanction of public approval.

Regarding Government consular reports it was recommended that they be prepared under instructions compiled by technical experts, in order that the information contained in them might be made of more substantial value. Of commercial attachés, a number of whom are now employed under the jurisdiction of the Department of Commerce, the report said that their work should be made especially helpful in aiding the American manufacturer to furnish the goods that the foreign markets call for.

In conclusion the report urged the amendment of existing laws so that arrangements for agreements among manufacturers of competitive lines be sanctioned, in order that foreign trade might be sought through such combinations.

PRIZES FOR NEW USES OF ALCOHOL

The Russian Government Offers Many Rewards for Novel Methods of Utilizing Distillery Products

THE absolute prohibition of the use of all sorts of alcoholic beverages in Russia has, naturally, caused the shutting down of all the distilleries and a great loss of internal revenue to the government. Steps, however, are being taken to put this great industry once more on a sound basis. The Russian Ministry of Finance is organizing international competitions to discover the best methods of utilizing spirits or alcohol or their products, and of new substances for denaturing spirits or alcohol.

As regards the former competition, prizes of 60,000, 30,000 and 10,000 roubles (a rouble equals 51.5 cents U. S. currency) will be awarded for the invention of a novel means of adapting alcohol for the preparation of such a product, as shall by its nature absolutely differ from the spirit from which it is made, *e.g.*, vinegar, ether, chloroform, etc. Three prizes, of 50,000, 20,000, and 5,000 roubles, respectively, will be awarded for the invention of a novel method of utilizing spirit for the preparation of a product (*e.g.*, a pharmaceutical or perfumery preparation), of which spirit or its products (sulphuric ether, etc.), will appear as one of its component parts or dissolvent, providing that spirit cannot be extracted profitably from the product. Three prizes of 30,000, 15,000 and 5,000 roubles, respectively, will be awarded for the invention of a novel method of utilizing spirit in productions, where spirit or its products would serve as temporary intermediary dissolvents of either of the extracted or precipitated materials, *e.g.*, smokeless powder, manufacture of artificial silk, etc. Further prizes ranging from 75,000 to 5,000 roubles will be awarded for the invention or perfection of apparatus for the utilization of spirit as motive power fuel, or illuminant.

The competition of new substances for denaturing spirit or alcohol is being organized with the object of extending the use of spirit for technical purposes, and accordingly three prizes of 30,000, 15,000 and 5,000 roubles, respectively, are offered for finding novel denaturing materials for improving the existing methods of denaturing, which, whilst guaranteeing the free use of denatured spirit, would obviate any possibility of using it as a beverage.

Applications in respect of both of these competitions should be addressed to "l'Administration Générale des Impôts indirects et du Monopole de l'Alcool," Tutchkoff Naberezhnaia, Petrograd, not later than 1st/14th January, 1916, and must be accompanied by samples. Such applications should be made in the Russian or French languages and enclosed in a special envelope bearing an inscription or device of some sort, the name and address

of the applicant being submitted under separate cover bearing the same inscription or mark.

Inventors may reserve the right of benefiting by their inventions and of protecting themselves with letters patent.

ELECTRIC FANS WIDELY USED

They are Displacing the Punkah in India—
Growing Demand for the American Product

THE use of electric fans is rapidly increasing all over the world, even in countries where human labor is considered cheaper than machinery. In British India, for instance, thousands of "punkah boys" have been displaced by power-driven fans. The punkah is a ceiling fan that is revolved by pulling a cord. Among the natives this is one of the hereditary industries of India, and the "punkah boys" follow it from childhood to old age. The advantage of the punkah is that it gives a fixed direction to the breeze which is spread over a large area instead of being more or less concentrated as with the ordinary electric fan. The usual number of blades of a punkah is four. Their width may vary from 6 to 12 inches, and they sweep over a circle of from 40 to 60 inches diameter. The speed is slow—about 200 revolutions per minute. This slow speed has constituted a great difficulty in designing electrically driven punkahs, but several manufacturers have been successful in doing so. The most expensive of these motor-driven punkahs, heavily enamelled and gold mounted, sell for about \$50.

In the past, all through the Far and Near East, electric fans of all sizes and descriptions have come mostly from Germany. To meet the demand that is expected this season, it is reported by a British export publication. Italy is said to have prepared a large stock. Considerable shipments from the United States are also looked for, as the American fan, wherever it has been introduced, has met with favor despite its being higher priced than the German article.

Last year America's best customers for electric fans were: Argentina, which took 6,715; Canada, 6,334; British India, 3,641, and the United Kingdom, 3,332. The number exported to India was almost double that of 1913. Argentina and the United Kingdom also showed large increases. Brazil, Australia and Tasmania, Cuba and Peru are also noteworthy consumers of American fans.

COMMERCE BUREAU'S BUSY BRANCH OFFICE

New York's Immense Correspondence and
Many Visitors from all Over the World

THE growing interest shown by American manufacturers in foreign trade is evinced by the immense amount of correspondence handled and the many visitors who called at the New York branch office of the Bureau of Foreign and Domestic Commerce during the month of May. No less than 7,406 letters were received by mail, and American manufacturers in the New York district were supplied with 5,874 names and addresses of foreign merchants in the market for American goods. Visitors to the number of 1,114 called personally. The cosmopolitan character of these visitors is shown by the fact that not only were most of the cities in the United States represented, but there were also visitors from all parts of the world.

RUSSIA NEEDS FARM MACHINERY

The Russian Ministry of Agriculture's Estimates of the
Quantities of Implements and Apparatus Required

A RECENT report from the British Consul at Riga, Russia, states that, according to the local press, a special committee of the Russian Ministry of Agriculture has made an estimate of the immediate demand in Russia for agricultural machines and implements which includes,

among others, the following: 120,000 to 150,000 plows, 7,000 cultivators and spring harrows, 2,000 disc harrows, 1,000 field harrows, 3,000 to 4,000 threshing machines, 15,000 to 20,000 horse rakes, 6,000 to 8,000 sorting and cleaning machines, 4,000,000 scythes, 500 tons of spades and shovels, and 500,000 to 600,000 hand hay rakes.

Owing to the necessities of war, however, the few rather roundabout avenues of transportation into Russia that can be used are practically monopolized by the requirements of the armies. At present, therefore, the delivery of imported goods is fraught with great difficulties. But as soon as the former sea routes to Russia are reopened the accumulated demand, not only for agricultural implements, but for all classes of merchandise, will be unprecedentedly large. Those manufacturers who are the first to present their products to the attention of buyers in Russia, by advertising and otherwise, will be in an especially advantageous position to secure a large share of this trade.

A \$111,000,000 GOLD SHIPMENT

British Man of War Carries Bar Gold Valued at \$22,204,000 from South Africa to London

AMONG all the activities of British industry none is more important than that of the Transvaal goldfields. South Africa contributes 70 per cent. of the raw gold received in London, and about 40 per cent. of the whole world's output. The following account of a shipment of \$22,204,000 of Cape gold to London by a British man of war is taken from *South Africa*, a London publication:

"It was towards the end of December that the work of transferring the bar gold from the Johannesburg bank vaults, where it had been accumulating for many months, to the metropolis, was resolved upon. Very few were aware of the nature of the contents of the ponderous looking clamped boxes of steel, which, under the surveillance of a body of armed guards, pledged to se-

crecy, were in that month methodically loaded and counted onto wagons of unpretentious appearance. Without the slightest hitch, 97 tons of solid gold were thus conveyed at night through the streets of Johannesburg to the railway station. A few weeks prior to this consignment there had been secretly dispatched 85 tons of gold, so that in the two loads the Bank of England has received pure gold to the value of \$22,204,000.

"On arrival at the railway station, the gold boxes were labeled 'Iron bars,' and thus the gold was sent on the initial stage of its long journey to Simon's Town where it was taken direct alongside a man of war and shipped to Great Britain.

"The vital importance attached to the Rand mining industry in the present crisis can be inferred from the fact that special instructions from the British Government have been received in South Africa to maintain the output of the mines at all costs. As a matter of fact, the production from the Witwatersrand fields for the first six months of the war constitutes a record in the annals of the industry."

MOTOR IMPORTS OF NEW SOUTH WALES

Increased Trade with America
in Chassis and Car Bodies

A RETURN showing the imports of motor cars, commercial vehicles and motor cycles by New South Wales, Australia, for 1914, has been compiled by the Secretary of the Motor Traders' Association of Sydney. The figures were supplied by the Customs Department, and show that New South Wales imported motor vehicles to the value of £638,583, as against £573,135 for 1913, an increase of £65,448.

The countries that show an increase over the previous year's figures for chassis are: United States, £26,873; Canada, £26,631; Great Britain, £2,476; Belgium, £1,814; Germany, £1,712.

In 1914 motor car chassis to the value of £160,375 were imported from the United Kingdom. The purchases from the United States came to £159,535. While America has become such a serious competitor of Britain for the car

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— REFERENCES —

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trade of New South Wales, England has almost a monopoly of the motorcycle trade, for of £59,817 thus spent in that State, £55,434 went to Great Britain—an increase of £17,000 over 1913—while the American sales were only £1,384, an increase of £349 over the previous year.

In motor car bodies, however, the United States surpassed the United Kingdom. The former's exports to New South Wales were valued at £38,524, and the latter's at £29,483.

On December 31, 1914, there were 10,001 touring cars registered in the State of New South Wales. Commercial vehicles numbered 585, and taxis 236. The number of motorcycles registered was 6,373.

JAPAN'S LATEST CENSUS RETURNS

The Cities of that Empire Now Rank in Population
with Some of the Better Known World Centers

FROM the official record of the quinquennial census of Japan, taken in 1913, which has just been published, it appears that the total population of that country is 54,843,083. This is a gain of 3,384,991 since the census of 1908 and an increase of 13,873,483 since 1893.

The cities of Japan now compare with some of the better known world centers. Tokyo, for example, with its population of 2,033,321, now ranks with Berlin and Vienna, according to the returns of 1910 for those cities, and is in advance of Petrograd, which in 1910 had a population of 1,908,000. Osaka—the Manchester of the Far East—has a population of 1,387,366, which is 200,000 greater than Rio Janeiro's 100,000 more than that of Calcutta's, and as much less than Moscow's. Kyoto, with 508,068 population, stands in the list of world cities along with Cologne, Breslau and Hyderabad, and is only 17,000 behind Birmingham.

MORATORIA IN EUROPEAN COUNTRIES

Where they have Expired and
Where they are Still in Force

ON the outbreak of the war nearly all the European countries, both belligerent and neutral, resorted to extraordinary measures to regulate the settlement of private liabilities contracted prior to the war's commencement. Some of these measures have expired by their own limitation, while others are still in force.

No moratorium or any similar measure was enacted in Spain. No moratorium, properly so called, was enacted in the Netherlands, but the courts were authorized to grant respite in the case of claims arising before July 29, 1914. A special law regulated the settlement of stock exchange contracts.

Moratoria for debts due to creditors residing abroad, though not for domestic debts, were instituted in Germany, Portugal, Denmark and Roumania. This arrangement expires in Portugal July 8, 1915; in Denmark the date is October 15; in Roumania it runs four months from the day of maturity of debts due to foreigners contracted prior to December 23, 1914.

Moratoria have ended in the United Kingdom, Italy, Norway and Luxemburg. In Sweden the domestic mora-

torium expired October 6, 1914, but the international moratorium was extended to June 1, 1915. In Switzerland the resident debtor may plead against a foreign creditor any defense which that creditor's country permits local debtors to plead against Swiss creditors. The Austrian moratorium covers debts and liabilities incurred before August 1, 1914, and falling due prior to February 1, 1915. It provides for a gradual reduction of debts by partial payments, so that by the end of May, 1915, debts due before the end of October, 1914, shall have been paid in full, and those falling due in November, 1914, reduced by one-half. In Hungary the moratorium is to end July 31, 1915. In Turkey it has been extended to July 13, 1915.

In France the decree providing for the suspension of all prescriptions and limitations in civil, commercial or administrative matters, and of all time limits allowed for serving, executing or appealing against the decision of courts, is to remain in force "until the cessation of hostilities" in favor of citizens serving with the colors or residing in the eleven departments in or near the war zone. The commercial moratorium was extended April 15, 1915, for ninety days. Corporations, departments and municipalities were granted an indefinite postponement of the payment of obligations, interest or dividends due before April 1, 1915.

In Belgium both the Government at Havre and the German military government have instituted moratoria.

Out of the 63 governments or provinces of European Russia only 31 have moratoria applying to liabilities arising prior to July 30, 1914. The general moratorium in Poland has been extended to September, 1915. Montenegro decreed a moratorium at the outbreak of the war. The measure was to terminate six months after the completion of mobilization. In Serbia the general moratorium decreed July 24, 1914, covers not only debts contracted prior to that date but also liabilities arising later. It is to continue in force until two months shall have elapsed after the publication of a decree of demobilization. The Bulgarian moratorium is to continue until abrogated by law or royal decree.

In Greece a number of the extraordinary measures enacted during the Balkan War were still in force when the present conflict began. These moratoria have been extended to July 13, 1915.

GROWTH OF THE AUSTRALIAN MEAT TRADE

UNDOUBTEDLY the greatest trade development of Australia in recent years has been in the meat trade. The following table shows that in frozen and tinned meats we exported £2,200,000 in 1908, £4,430,000 in 1910, £7,131,000 in 1913, and as much as £9,115,000 in 1914. Consequently this trade has developed to more than four-fold in six years.

	Frozen Beef.	Frozen Mutton.	Frozen Rabbits.	Preserved Meats.
1908.....	£451,551	£1,219,107	£336,093	£213,476
1909.....	736,270	1,231,035	423,679	401,606
1910.....	1,179,146	2,161,503	486,592	602,880
1911.....	1,102,132	1,633,622	467,034	756,143
1912.....	1,630,731	1,592,378	320,887	611,233
1913.....	2,652,275	2,806,532	497,568	1,084,651
1914.....	4,187,885	2,972,739	477,344	1,477,047

The greatest expansion has been in frozen beef and tinned meats—the latter largely beef also.—*Daily Telegraph* (Sydney, Australia).

THE DIAMOND MINING INDUSTRY

IT will surprise no one who has followed the trend of events that the statistics relating to the diamond mining industry for the year 1914, now published by the Union Department of Mines and Industries, should exhibit a very marked falling off as compared with previous years. The war, of course, has practically brought the industry to a standstill, and, therefore, no other result was to be expected. The total diamond production of the Union last year amounted to 2,801,016 carats, the value being £5,487,194; and these figures compare with 5,163,546 carats, worth £11,389,807 for 1913. The Cape mines, in-

EXPERIENCED SELLING AGENTS WANTED

by large American manufacturers of STOCKINGS and SOCKS, who export large quantities to most countries. Only those having experience and who formerly took indent orders for European stocking manufacturers need apply. State full particulars, names of former manufacturers you represented and previous average annual stocking sales.

Address:

O'CALLAGHAN & FEDDEN,
121-123 E 24th St., New York City, U.S.A.

cluding Kimberley, the production of which for the year was 1,239,145 carats, worth £3,084,262, yielded 1,350,535 carats, of a sterling value of £3,544,072. The Transvaal mines were responsible for 1,142,682 carats, or £1,162,031, while the Orange Free State contributed 307,797 carats, worth £781,091. There were 13 mines producing during the year, comparing with 16 for 1913, 28 for 1912, 21 for 1911, and 9 for 1910.—*South Africa*.

AUSTRALIAN PRESERVED RABBITS

RABBITS are so plentiful in South Australia as to be a pest in some places, but by a great many they are held in the highest esteem as a table delicacy. Men of the army and navy, and particularly Jack Tars who are stationed on the vessels of the home fleets, are exceedingly fond of rabbit, and South Australian preserves have worked up a big business connection with the navy. Every week shipments of rabbit meat are sent away to London for distribution among the warships in the North Sea and at other stations. The Border Preserving Works, at Compton, near Mount Gambier, dispatches about 1,000 cases of preserved rabbits in 2 lb. tins every week, and as each case contains 72 lb., the weekly shipment represents about 72,000 lb., or approximately 72,000 rabbits. As fast as the product can be turned out it is packed for export, and if the supply were ten times as great the Naval Department would gladly take every case, but the industry threatens to outgrow the supply of rabbits.—*Adelaide Chronicle*.



NEW BOOKS ON SOUTH AMERICA

THE wave of popular interest in Latin-American affairs that swept over the United States and the United Kingdom immediately after the outbreak of the war has resulted in the production of some books of a kind that had long been needed—namely, brief handbooks and guides that, without being unduly learned or ponderous, are sufficiently accurate and comprehensive to serve the purpose of the ordinary tourist or traveling salesman.

An excellent book of this class is W. A. Hirst's *Guide to South America*,* a compact and well-arranged summary of just the kind of information that the traveler visiting that continent for the first time most needs to know. It is not so much a book for fireside reading as a handbook to be placed in one's steamer trunk, to be consulted while en route. Still, it will be found exceedingly useful by business men who require a brief and succinct account of the South American countries and their principal cities, and a clear statement as to where the latter are located and how they can best be reached. This feature of the book is exceptionally well done, while the full-page maps that accompany the volume are models of their kind—giving all the essential facts needed to illustrate the text, without being over-burdened with superfluous details.

Two volumes have just been added to the series of South American Handbooks issued by another publisher, namely *North Brazil* and *South Brazil*, by E. C. Buley.* As their title implies these companion books make no pretense of literary style, but aim to give in the most compact form possible the essential facts regarding the vast regions of which they treat. In the main the two volumes are identical in arrangement of material, the principal chapter headings in each being as follows: Geography and Physical Features, Climate and Health, Flora and Fauna, History and Settlement, States and Distribution of Population, Constitution and Defense, Federal and State Finance, Social Conditions, Ports and Harbors, Inland Communications, Agriculture, Manufacturing Industries, Imports and Exports, Towns and Populations. In addition to these the volume on North Brazil has chapters on the Rubber Industry, Forest and Mineral Products and the Pastoral Industry; while that on South Brazil has chapters on Agricultural Colonies and Rates of Wages, Mines and Mining Law, and Pastoral and Forest Products. Both have similar appendices treating of Money, Weights and Measures; Postal and Telegraph

Guide; Steamship Lines, and Diplomatic Representatives. As handbooks for the manufacturer and exporter, the traveling salesman, the student of international trade and the statesman these works will prove invaluable. Especially useful is the long chapter in each volume giving the list of principal towns, which constitutes a veritable gazetteer of each section.

**A GUIDE TO SOUTH AMERICA*, by W. A. Hirst. Published by the Macmillan Company, 66 Fifth Avenue, New York City, U. S. A. Price, \$1.75 net.

**NORTH BRAZIL*, by E. C. Buley (in series of South American Handbooks). Physical Features, Natural Resources, Means of Communication, Manufactures and Industrial Development. Published by D. Appleton & Company, New York City, U. S. A. Price, \$1.50 net.

**SOUTH BRAZIL*, by E. C. Buley. Companion volume to the foregoing. Published by D. Appleton & Company, New York City. Price, \$1.50 net.

THE ROAD TOWARD PEACE

UNDER this suggestive title* Charles W. Eliot, former President of Harvard University and one of America's most famous men of letters, has collected a number of addresses and letters written to the *New York Times* regarding the causes of the present world war, the attitude of Americans toward it, and the lines along which a right and lasting peace can be secured. As these letters were widely copied and commented upon at the time of their publication, many will welcome the opportunity to preserve them in their entirety in permanent form.

The most noteworthy of the papers in the volumes are those discussing the causes of the war and its outcome—chapters V, VI and IX. These present a breadth and depth of historical knowledge and a profoundness of insight into the fundamental factors that make for or against the advance of true civilization that will make many of President Eliot's passages classic. His survey of the situation is clearer than that of the participants in the great struggle because he is able to completely detach himself from all personal sympathy with one party or the other and regard the problems presented solely from the standpoint of the welfare of mankind. In this respect his attitude is singularly like that of President Wilson, with whose course he is heartily in accord. The book also contains an interesting series of letters exchanged between the author and Jacob H. Schiff, which was also published in the *Times*, with the consent of both parties, and was widely commented upon. It is one of the most valuable of the many books now on the market treating of the war.

**THE ROAD TOWARD PEACE*, by Charles W. Eliot. Published by Houghton, Mifflin & Company, 4 Park Street, Boston, Mass., U. S. A. Price, \$1.00 net.

A PHASE OF CONTEMPORARY HISTORY

PREDICTIONS as to the issues of affairs, or regarding the paths into which the pursuit of national policies may lead, are usually of only ephemeral interest. The majority of them never come true, because, oftener than not, it is the unexpected that happens. When, however, one of these forecasts is subsequently discovered to have hit some place in the target of events, it is resurrected and achieves a certain popularity. In the latter class is a volume,* first published in France in October, 1913, which has recently been translated into English and published in America.

The author explains in detail his views of the Pan-German League, its many subsidiary societies and their activities. He gives an account of their propaganda, as outlined by the German writers from whom he quotes, and deduces their influence on France. When this book was written these conclusions could be regarded only as purely speculative. In the light of the history of the last few months the logic of the reasoning by which they were arrived at seems more worthy of attention. At any rate, the book is likely to be of interest to the general reader who seeks to obtain some perspective in surveying the immediate causes which led up to the present war.

**FRANCE IN DANGER*, by Paul Vergnet; translated by Beatrice Barstow. Published by E. P. Dutton & Co., 681 Fifth Avenue, New York City. Price, \$1.00 net.

A BOOK ABOUT AN AUTOMOBILE

THE tremendous growth of the automobile industry in America and the establishment of huge factories that build hundreds of cars a day has brought forth a new class of literature—books about certain makes of cars. These books are not advertising matter. They are educational works that are sold as such and at corresponding prices. An example is a 280-page book* on the construction, operation and repair of the Ford car. All parts of the "Model T" are comprehensively described and illustrated, the operating principles are made clear, and complete instructions for driving and repairing are given.

**THE MODEL T FORD CAR*, by Victor W. Page, M. E., published by The Norman W. Henley Pub. Co., 132 Nassau Street, New York. U. S. A. Price \$1.00.

Information for Buyers

As it is frequently impossible for advertisers to explain clearly the purpose or particular merits of their products in the advertising columns, space in this section is placed at their disposal to enable them to do so. It is proper to add that they, and not the publishers, are authority for the statements made.



Dry, Smoked, Pickled or Canned Fish

THE Gorton-Pew Fisheries Company of Gloucester, Massachusetts, U. S. A., was organized in 1906. It was a consolidation of four other leading business firms that had been doing business many years in Gloucester, the men composing the different companies having been engaged in the fishing industry from boyhood.

This company occupies in Gloucester 11 large wharves that can furnish dockage for 40 vessels at a time, with facilities for discharging the catch of 14 vessels at once.

It owns over 40 fishing vessels, all well fitted and up-to-date. It employs (with its own and other vessels) a fleet of 100 vessels and about 2,000 men, in catching fish on the banks of the Atlantic coast. In its service ashore about 1,000 persons are constantly engaged in preparing the catch for shipment to the large domestic and foreign markets.

Besides its Gloucester plants, this company has other well-furnished establishments in Boston, on the Maine coast and in Gaspe and Newfoundland.

Last year the company received at its plants in Gloucester, direct from the fishing

drying indoors during all kinds of weather over 150,000 pounds at one spread. These abundant facilities enable it to fill orders with a commendable degree of promptness. The large stock of fish on hand throughout all seasons of the year gives buyers a profitable stock to select from.

Besides its numerous plants for curing codfish, mackerel, herring and halibut for the market, it has extensive canning establishments for preparing fresh fish of different varieties for the large and growing demand for its popular brands.

Dealers in and distributors of dry, smoked, pickled or canned fish, in any part of the world, will find it to their advantage to communicate with this company regarding their requirements. Correspondence may be in any language, and will receive prompt and careful attention.

An Ideal Coffee Mill

EVERY coffee drinker knows that to obtain the full strength and flavor of the beverage it must always be freshly ground. The improved No. 3 Crystal Coffee Mill is particularly desirable for this purpose. The mill itself is very substantially constructed and can be fastened to a wall,

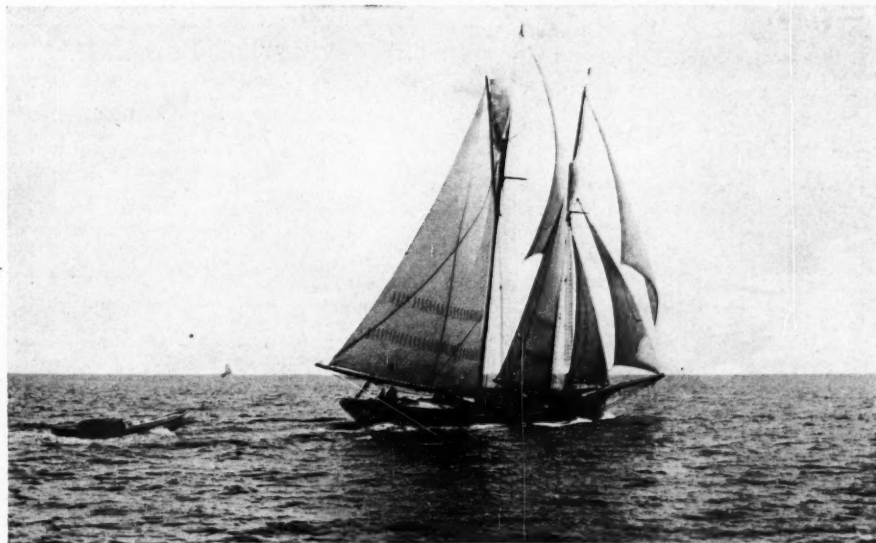
one pound, screws into the top of the mill, and is removable for cleaning. Being provided with an airtight screw metal cap, the contents are protected from all atmospheric changes—a very important feature because of the rapidity with which coffee deterior-



The improved No. 3 Crystal Coffee Mill

ates when exposed to the air. Underneath is a glass cup marked with graduations showing the number of tablespoonfuls that have been ground. This enables the user to see when he has enough. This not only prevents waste but also insures a perfect cup of coffee because the exact quantity required is not to be exceeded.

The new No. 3 Crystal coffee mill is remarkably inexpensive. A great many merchants in all parts of the world are finding



One of the fleet of the Gorton-Pew Fisheries Company. This concern employs 100 vessels and about 1,000 men to supply its plants

vessels, over 40,000,000 pounds of codfish and other ground fish. Besides this, it also received large quantities of mackerel, herring and halibut.

The Gorton-Pew Fisheries Co. has facilities for drying over 500,000 pounds of fish in the open air at one time, and for artificial

cupboard door or any other place that may be convenient. Every part is interchangeable. This makes repairs easy in case of breakage through accident or wear. By the turn of a thumbscrew the mill can be adjusted to grind to any degree of fineness. The glass container, with capacity of about

this mill a very profitable article to handle, because of its many desirable features and the fact that its low price and attractive appearance makes it a quick seller. Catalogues, prices and other particulars can be obtained by writing to the Arcade Manufacturing Company, Freeport, Ill., U. S. A.

A New Renewable Valve Disc

JENKINS BROTHERS, of 80 White Street, New York City, U. S. A., who are large manufacturers of renewable disc valves, announce that they have succeeded in producing a new valve disc that possesses a number of features that will recommend it very highly to the engineering world. This disc, which will be known as the Jenkins Bros. "No. 119," has been perfected at their modern rubber factory at Elizabeth, N. J., and will hereafter be used in all Jenkins Bros. Standard Pattern globe, angle, cross and radiator valves, when intended for steam service. The composition of which this new disc is made is extremely hard, but when subjected to steam pressure it becomes tough and flexible. It is claimed to be remarkably free from the cracking and flaking, and dis-



The "No. 119" renewable valve disc

plays remarkable durability even when working with steam pressures up to 150 pounds.

During the past year these new discs have been subjected to the severest possible tests in hundreds of plants, and engineers are said to consider them the most satisfactory articles of the kind for steam service that have been brought to their notice.

Jenkins Bros. also manufacture discs made of other compounds, each of which is equally well adapted to the specific service for which it is designed—for hot or cold water or for air or gas. Back of these discs is the guarantee which has gained for the products of this concern their reputation for reliability. The company maintains a well organized service department to assist those in doubt as to the proper valve or disc to use for any particular purpose, and its advice is at the disposal of any customer without cost. Engineers who are having trouble with the discs they are now using can obtain samples of the Jenkins Bros. No. 119, together with catalogues and prices, by writing to the above address.

Rapid Increase in the Use of Steel Fence Posts

THE Carbo Steel Post Company, of Chicago, manufacturers of a line of spring steel posts for field, residence, poultry yard and other fencing purposes, announce that their business this year bids fair to more than double last year's increase. More and more farmers, especially, are discovering the advantages of these steel posts. They are realizing that they enable them to burn their fields over every year without harming their fences, and that the patented method of anchoring these posts firmly and deeply by the soil alone, without the use of concrete, insures their permanent stability. In order to keep up with the rapidly growing demand for their product these manufacturers have been compelled to establish—at Cambridge, Ohio—a large and completely equipped new branch factory to supplement the main factory at Chicago Heights, Illinois, which is being operated to its capacity. The increased consumption of steel in the manufacture of these posts is so considerable that it is said to be attracting the attention of the mills connected with that industry.

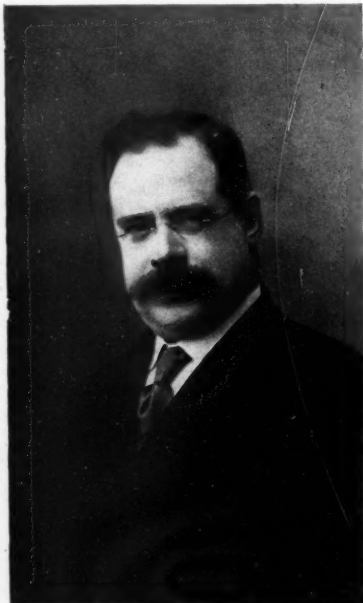
Inquiries regarding these steel fence posts should be addressed to the Carbo Steel Post Co., 877 Rand-McNally Building, Chicago, Ill., U. S. A.

High Class Port Wines

PORTO, the second largest city of Portugal, has been famous for centuries for its wines. It is the chief commercial center and shipping point of the choicest of port wines that are found on the tables of connoisseurs. Thousands of men and women are employed

partnership J. M. Gomes Figueiredo, a native of Portugal, who had been connected with the firm since 1880, and Edmund H. Arnsby, an Englishman, who had been associated with the house for 16 years. Since Mr. Krohn's decease these two gentlemen have conducted the business, which this year celebrates the first half century of its existence.

This house does business with all parts of



J. M. Gomes Figueiredo



Edmund H. Arnsby

in the making and handling of these wines, preparing them for shipment to the four corners of the world, and many important firms are concerned in the industry.

Among these well-known and long-established wine houses the firm of Wiese & Krohn

the world, and carries in stock some 2,000 pipes of the wines for which Porto is noted. It has received awards in many great international expositions. Among these prizes, evidencing the excellent qualities of their product, are six gold medals given by ex-



In the wine cellars of Wiese & Krohn Succs. hundreds of barrels of the choicest vintages are ready for shipment to any part of the world

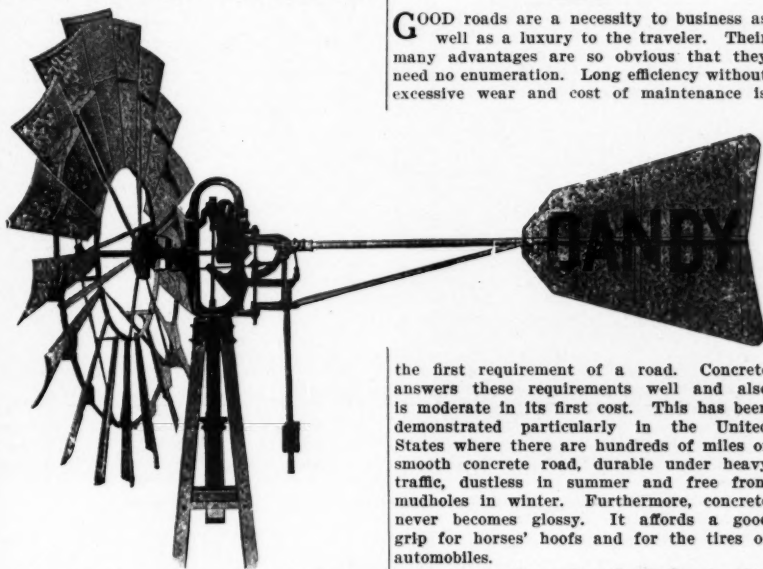
Succs. is particularly noteworthy. It was founded in 1865 by two enterprising young Norwegians—Theodor Wiese and Dankert Krohn. The former retired a number of years ago, and the latter continued as sole proprietor until 1906, when he took into

positions at Bordeaux, Chicago, Paris, St. Louis, Cape Town and Rio de Janeiro, and a first prize at the Berlin Exposition in 1888. This firm invites correspondence from importers and wholesale buyers, as well as responsible agents, where it is not represented.

Water Supply for Farm and Home

FOR pumping an abundant water supply on the farm or in the suburban home, an engine or windmill is an absolute necessity. Where only power for pumping water is wanted there is nothing cheaper in operation than a good windmill, as it requires no fuel and is always ready for work when the wind blows.

The Challenge Company manufacture windmills from 16 to 18 feet in diameter in several styles, and are in a position to meet the demands of all classes. Their "Dandy" mill is built strongly, substantially and simply. There are no complicated parts to get out of order, and when fitted with graph-



This windmill has no complicated parts to get out of order

ite bearings no oil is required. Either 3 or 4-post galvanized steel towers can be furnished with this mill, in any height from 10 to 18 feet. The corner posts of the towers are heavy angle steel, braced with flat steel bars with angle steel girders every five feet, making the strongest construction known for its weight. All steel parts of the mill and tower are galvanized after the

market for the past 16 years and have gained an excellent reputation for simplicity, durability and economy in operation. They are made in sizes from 1 to 16 H.P., in both stationary and portable styles and sold at reasonable prices. They also make steel and wood tanks, feed grinders, wood saws, pumps, cylinders, etc., steel sub-structures and water works supplies. Catalogues and full particulars regarding the above can be obtained from the manufacturers, The Challenge Company, 98 River Street, Batavia, Ill., U. S. A.

Concrete Roads and Waterproofing Paste

GOOD roads are a necessity to business as well as a luxury to the traveler. Their many advantages are so obvious that they need no enumeration. Long efficiency without excessive wear and cost of maintenance is

the first requirement of a road. Concrete answers these requirements well and also is moderate in its first cost. This has been demonstrated particularly in the United States where there are hundreds of miles of smooth concrete road, durable under heavy traffic, dustless in summer and free from mudholes in winter. Furthermore, concrete never becomes glossy. It affords a good grip for horses' hoofs and for the tires of automobiles.

An interesting and authoritative booklet, "The Concrete Road," has just been issued by the Sandusky Portland Cement Co., Sandusky, Ohio, U. S. A. It contains accurate information as to the relative merits of various systems of road construction, their comparative cost, durability, etc. The facts are based on actual experience in the United States. The best methods of road building are also described in detail.

Another piece of literature, put forth by the same company, is in regard to the Medusa Waterproofing Paste which they

A cubic yard of concrete requires twelve pounds of waterproof paste. The actual proportion is eight pounds to each barrel of cement.

A copy of "The Concrete Road" and of the folder describing Medusa Waterproofing Paste will be sent free of charge by the manufacturer on request.

Kitchen Cabinets, Kitchen Tables and Ladies' Desks

KITCHEN cabinets have so many obvious advantages that they almost sell themselves in the retail establishments where they are displayed. In the first place, they are convenient. Everything that is needed is within easy reach. This is especially important in cooking, when at the last moment everything has to be done at once. They are economical. In the old, haphazard way of keeping flour and sugar and other things in sacks and pasteboard boxes much goes to waste. In the kitchen cabinet there is a place for everything. Furthermore, the kitchen cabinet is sanitary. The food and food materials are kept in drawers or jars or compartments that shield them from dust and odors. They cannot become contaminated in any way.

The arrangement of the kitchen cabinet has been the subject of much scientific study on the part of the manufacturers. In this they have been aided by the schools of domestic science that in recent years have been added to many colleges. The result is that the

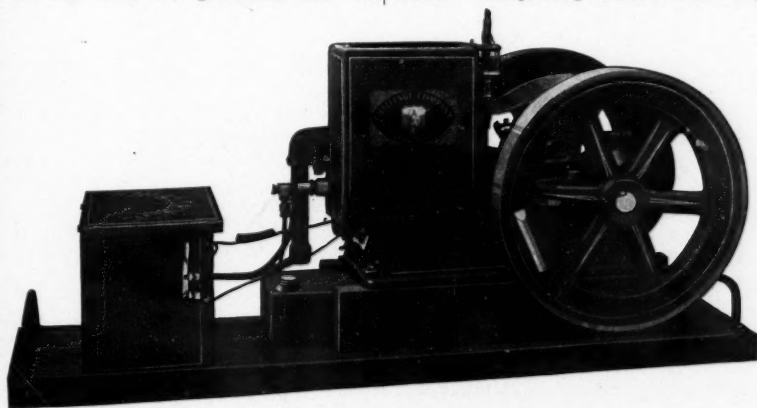


In the kitchen cabinet there is protection and a place for everything

kitchen cabinet has reached an unusual degree of development in America, the country of its origin and the chief place of its manufacture.

The I-XL Furniture Company, Goshen, Indiana, U. S. A., specialize on kitchen cabinets, kitchen tables and ladies' desks. They make kitchen cabinets in nearly 40 different styles, ranging in price from \$6 to \$40. One of the most popular styles is 72 inches high, 56½ inches wide, 27 inches deep when closed, and weighs, crated, 300 pounds. Among its features are: The interior of the top compartments is white enameled, a tilting metal flour bin, a swinging glass sugar bin, a seven-piece set of glass jars, a portable metal cake compartment, with a metal door and wire shelves; a subdivided cutlery drawer, a sliding maple top reinforced with steel, an all-metal bread and cake drawer, with an automatic sliding lid and sliding support; an extra heavy banded sliding cutting board, two sliding metal bottoms and a wire shelf in the base.

In ladies' desks this company make nearly 20 different patterns in oak or maple and in a number of finishes. They have displayed the same conscientious skill in the designing of their desks as in the planning and manufacture of their kitchen cabinets. They will be glad to send descriptive literature regarding their product on request.



These portable gasoline engines are made in sizes from 1 to 16 horsepower and are simply constructed and economical

cutting and punching is done, which protects them against rust and makes a finish that lasts a lifetime.

Where power for pumping and operating machinery is required, a gasoline engine can be used to good advantage, especially the small sizes as they can be easily moved from place to place.

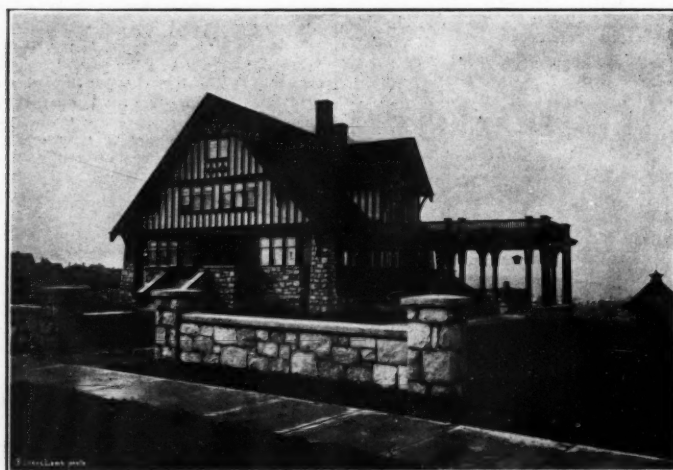
The Challenge engines have been on the

manufacture. This paste is identical with the powder in resulting composition and waterproofing effect. The only difference between the two is the greater ease and convenience of mixing which the paste form offers. It is said by the manufacturers to produce a perfect waterproofing effect.

This paste is shipped in one and five-gallon cans, weighing eight pounds to the gallon.

Preservative Qualities of Shingle Stains

A RELIABLE shingle stain is an important factor in making a new building attractive. It enhances its value materially and costs little. Shingle stains are durable. They are made in many colors so that they blend harmoniously with any architectural design. Their value is increased by their also being excellent preservatives of wood. So long as these stains are used the wood is proof against the weather and the attacks of insects.



A residence at Vancouver, B. C., decorated with Langmuir's moss green shingle stain on the roof and seal brown on the sides

In many respects these stains are claimed to have special advantages over ordinary paint, among them lower cost, greater ease of application, maximum resistance to the effect of sunlight—which makes the colors more durable—and the fact that they penetrate the wood to which they are applied instead of remaining on the surface. Moreover, the use of these stains is not confined to shingles, for they are highly recommended for porches, verandas, half-timber work, fences, gates, posts, barns, stables, poultry houses, and all other interior and exterior woodwork. They are also particularly desirable for timbers in cellars, attic rafters, the undersides of porch floors, poultry house interiors and similar woodwork liable to fungus growth or exposed to dampness or insects.

Those who wish full information about single stains should write for a catalogue that has recently been published by James Langmuir & Co., Limited, Oakville, Ont., Canada, who are large manufacturers of these specialties. They will be pleased to send to architects, builders, contractors, decorators and others interested in their use a full set of sample colors on wood showing their exact appearance.

Refrigerating Machines for Condensed Milk

THE field for mechanical refrigeration is broadening every day, and one of the many interesting phases of its application is in connection with the condensed milk industry.

Condensed milk is being utilized more and more both in the United States and other countries where this necessity of life is desired in compact and readily transportable form. It is made from whole sweet milk in large and well-equipped condenseries under sanitary conditions and distributed in

two forms, either as evaporated or sweetened milk. Evaporated milk is simply concentrated whole milk in the ratio of about 2 to 1, or the bulk of the whole milk is reduced in vacuum pans where the surplus water is removed under a temperature of 120 to 130° F. This product contains 7.6 to 8 per cent. fat and 26 to 28 per cent. of solids, practically twice the percentage in whole sweet milk.

The evaporated milk is removed from the vacuum pans in its warm state, aerated and cooled by passing over a tubular cooler with water or refrigerated brine circulating through the inner pipes until it has a tem-

perature of 60 to 70° F., when it is placed in cans and sealed air-tight. The filled cans are sterilized at a temperature of 245° F. Some manufacturers place the pans in a room maintained at a temperature high enough to encourage the rapid growth of bacteria, claiming that after a few days any fermentation will be detected by the bulging of the cans. Other authorities do not regard this as necessary, but cool the milk slowly after sterilizing to 40 or 50° F.

Sweetened condensed milk is a concentra-

Sometime ago, the Borden Condensed Milk Co., one of the largest concerns of the kind in America, decided to equip twenty of their stations with refrigerating plants, on account of the greater sanitation and the ease with which any desired temperature could be obtained. The Vilter Mfg. Co., 754-794 Clinton Street, Milwaukee, Wis., U. S. A., submitted the most acceptable proposition, and are now installing the twenty plants as rapidly as possible.

More than 100 separate industries, a number of them ranking among the most extensive and valuable for the maintenance of life and comfort, are more or less dependent upon the refrigerating machine, and some of them could not exist without artificial refrigeration. The handling of meat and fish in the present sanitary and economical manner would be utterly impossible if the refrigerating machine were eliminated. By use of such machinery, giving complete control of temperature at all times, it has become possible to distribute fresh, wholesome meat foods to all parts of the globe at prices much below that which would have to be charged for a much more inadequate service without the aid of refrigeration.

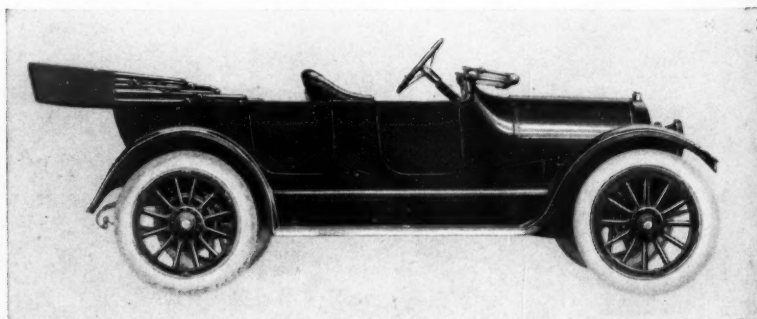
Those interested in any application of artificial refrigeration can obtain all desired information and the benefit of years of engineering experience in this line by communicating with the Vilter Manufacturing Co., Milwaukee, Wis., U. S. A.

A Single Roll Coal Crusher

BULLETIN No. 141, issued by the Jeffrey Manufacturing Co., 952 N. Fourth Street, Columbus, Ohio, U. S. A., describes their single roll coal crusher for mine and power house use in reducing run of mine coal to sizes 1 inch and under. It also contains tables of capacity, speed and horsepower, and many pictures of the machine in operation.

Overland Reduces Its Prices

LARGE additions to the Willys-Overland plant at Toledo, Ohio, U. S. A., have increased its capacity to an output of 600 cars a day. The economies of such a great production have enabled this company to reduce the price on their latest car—Model 83—a little more than 30 per cent. This type of four-cylinder Overland formerly sold



The Overland Model 83, on which the price has been reduced from \$1075 to \$750. This is a handsome touring car seating five persons comfortably

for \$1075. Its present price to the consumer is \$750.

This new touring car seats five grown persons comfortably; its 35 horsepower motor is exactly the same as last season's car, but as the Model 83 is lighter in weight, the surplus of power is greater. The equipment is very complete, and the appearance of the car is unusually handsome.

tion of whole milk in the ratio of about 2.75 to 1, or it is approximately 1/3 of the original bulk and contains 10 to 11 per cent. butter fat and 33 to 36 per cent. solids.

Thirty-five to forty per cent. of cane sugar is added and the preserved condensed milk is carried in sanitary vats in cold storage rooms until required, when it is filled off into cans and shipped to its destination.

Railway Motor Cars

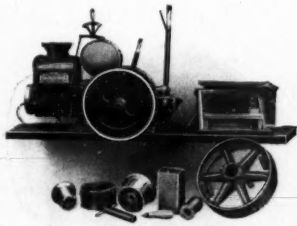
AMERICAN railroads are saving more than one-tenth of all the money paid for track labor by using light motor cars to transport the men, materials and tools to points on the track where repairs are needed. The laborers formerly wasted much of their strength in "pumping" the handpower cars

engines, made by the Fairmont Gas Engine & Railway Motor Car Co., it is said, are being placed in service each year.

The superiority of Fairmont motor cars and engines, it is claimed, is due to many features not found in competing makes. It is unnecessary to push the car to start the engine. This saves useless exertion. After cranking the engine the loaded car is started by tightening the loose belt or by throwing

spectively, without equipment. With only one cylinder, the engine's power is smoother and steadier than the usual slow, double cylinder, four-cycle type. The Fairmont is high-speed two-cycle engine that has no gears, cams, eccentrics or poppet valves in the explosion chamber. Small working parts that get out of repair have been eliminated.

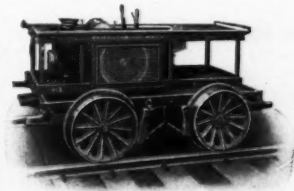
While high speed, this engine is more durable than the ordinary slow engines, for



4, 6 or 8 H. P. engine and hand car equipment



Daily work of 4 or 6 H. P. hand car engine



4 or 6 H. P. work car. Capacity—one loaded trailer

on which they rode to and fro. The modern motor car takes them to their work twice as quickly and saves all their energy for labor. The experience of one road—typical of others—is interesting.

This railway's records show that one of these light motor hand cars was operated at an average cost of 7 cents a day, carrying

in the clutch. Transmission is by either belt or chain. All Fairmont motor cars and engines reverse instantly—from control levers—and run backward as well as forward. This is a great convenience as it saves the labor of taking the car off the track and turning it around. Often it is desirable to run quickly backward to a favorable spot

its piston travel per horsepower is less, due to greater efficiency resulting from powerful ignition. The range of throttle control is unusually wide. The car throttles from full speed down to a walk without missing explosions.

The Fairmont Company also builds an inspection car (shown in the advertising sec-



Ready to travel at 15 miles per hour



Mowing grass at 3 miles per hour

five men thirteen miles. The daily average consumption of gasoline was only one-third of a gallon. The car carried the men back and forth in an hour less than by handpower, saving five hours, which at 12½ cents an hour, amounted to nearly 65 cents. It is obvious that the motor engine, on this basis, saves its purchase price in a year. A much

for removing the car from the track to make way for an approaching train.

The engine is finely built and very smooth running. This absence of vibration and jerking makes the car safe against derailment at high speed. These motor cars, in addition to speed—which ranges from three to forty miles an hour—are built to haul heavy

tion of this issue). With this car officials can save a vast amount of time. There is no waiting for infrequent or delayed trains. This car is as comfortable as an automobile. It weighs only 550 pounds; two men can easily put it on or off the track; its speed is up to forty miles an hour.

Heavy duty traction cars are used for hauling large gangs of men and loads of material on trailers. They handle six to eight tons easily. Many of them are used on plantation railways.

The motor car mowing machine cuts vegetation on both sides of the track at the same time at the rate of three miles an hour, the operators raising or lowering the cutter bars to follow the contour of the ground. It is also built with a cutter bar in front for mowing grass between the rails. Doing this work by hand, on American roads, costs about \$7 a mile; with this machine it is 30 cents a mile.

Light motor passenger cars are built on special order. They carry from twelve to thirty-five persons, and may be made in any gauge. The engines use kerosene and other crude fuels, or can be fitted for gasoline only.

The small space and weight of these engines make them inexpensive to import. Any mechanic can install them on a hand or push car.

This company also manufactures kerosene engines, tractors and electric plants. The profits offered to importers are very attractive. Address The Fairmont Gas Engine and Railway Motor Car Co., 441 North Main Street, Fairmont, Minnesota, U. S. A.



6 or 8 H. P. traction car. Capacity, 6 to 8 tons on 5 per cent. grade

greater saving can be made where the car travels more miles per day or carries more men.

Many of the largest railway systems in the United States are equipping all their old hand cars with these engines and are discarding the hand levers by which they were formerly propelled. Many thousand of these

loads that are entirely beyond the capacity of other medium-priced cars recommended for this work.

The remarkably light, powerful, simple engine is perfectly suited to the inexpensive belt drive and two-speed pulley transmission. The engines weigh 220, 350 and 550 pounds, for the four, six and eight horsepower, re-

Increasing Use of Steel Wheels

IT is more than twenty years since the first practical steel wagon wheels made their appearance. They were originally employed almost exclusively in connection with farm machinery, such as mowing machines, reapers, etc., but their advantages for vehicles were quickly recognized and it is now estimated that more than 150,000 farm wagons annually are being fitted with them.

One great advantage of steel wheels is that, given an occasional coat of cheap paint, they are practically indestructible. Being absolutely unaffected by moisture or changes of temperature they do not warp or deteriorate. No repairing or resetting of tires is necessary. The first cost is the only cost of steel wheels; they are always ready for service. Wood wheels must be repaired and rebuilt at irregular intervals, while steel wheels do not warp, swell, rot or split.

The Electric Wheel Company, Station B, Quincy, Ill., U. S. A., are large manufacturers of steel wheels of the highest quality. These wheels are made in an extremely wide variety of sizes and weights and for practically every requirement. Some features of superiority possessed by the Electric Steel Wheels to which particular attention is



A typical steel wagon wheel made by the Electric Wheel Company

directed are that the spokes are countersunk in the rims, which prevents the heads and shoulders from wear and the spokes from becoming loose; the hub is cast with a metal casing between the spoke ends and the casing, a process that keeps the spokes tight in the hubs as long as the wheel lasts and prevents the grease in the bearing working out; the spokes are put in the rims at white heat, thus eliminating the possibility of crystallization, as sometimes happens when they are riveted in cold; the boxes are made solid in the hubs—an improvement over movable boxes, as they cannot break or become loose.

Additional information regarding the advantages of Electric Steel Wheels can be obtained by writing the company for a copy of their catalogue giving prices, styles, sizes and weights of their product, as well as a large amount of other valuable information pertaining to capacities, measurements and ordering that will be interesting to everyone using wagons.

Cars with Exclusive Features

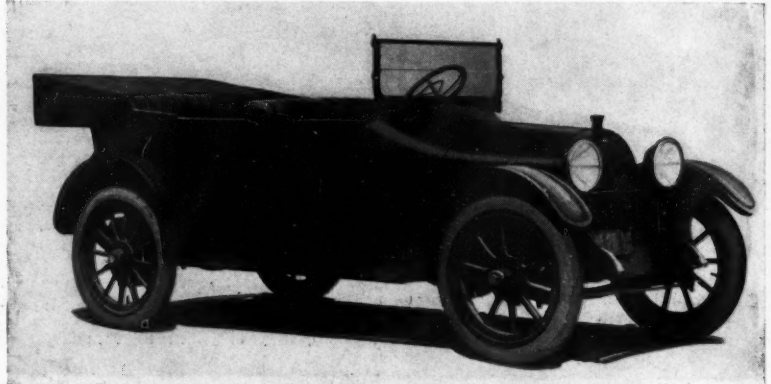
THE buyer of a Lexington car has three models from which to make his selection—the "Minute Man Four," the "Thoroughbred Six" and the "Six Supreme." All these are cars of "excess ability" on the hills, in their uniform and rapid acceleration on the level roads, in their power at low speeds and in their motor flexibility and economy in gasoline. This is largely due to the simple and unique way in which the designers and builders of the Lexington have overcome a defect common in multi-cylinder construction by the invention and application of the Moore Multiple Exhaust System.

The "Minute Man Four" is always ready, constantly on the alert. Its name was se-

ment in design and construction that have a strong appeal to the experienced motorist and are also immediately grasped by the man who is buying his first car. The five-passenger touring and the roadster in this model are priced at \$2,575, and the seven-passenger touring at \$100 more.

Easy riding is a feature of all these cars. This is due to the Ansted cantilever rear springs and to the special Lexington manner of suspending the body on the chassis. These cars also rank high in the other essentials of the best automobiles—in ability to do a maximum amount of mechanical labor with a minimum of wear and consumption of oil and fuel.

The Moore Multiple Exhaust System, with which all Lexington cars are equipped, consists of a double exhaust manifold, with double

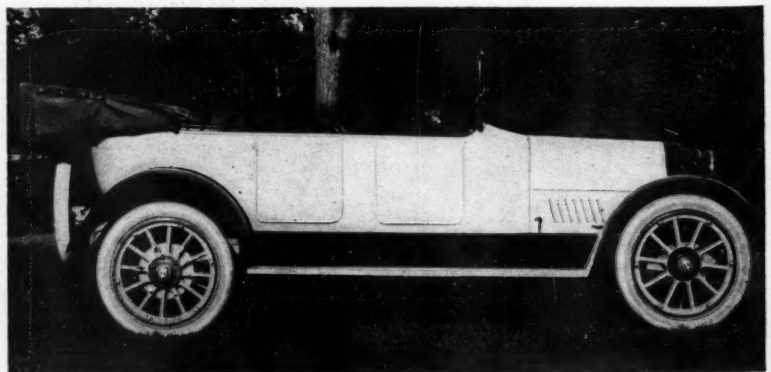


The "Minute Man Four," a five-passenger four-cylinder touring car made by the Lexington-Howard Company and selling for \$1,375

lected because it typified the ideal of the car. It is a full 40-horsepower automobile. The multiple exhaust system with which it is equipped permits an increase in horsepower of approximately 10 per cent. over the same size motor equipped with the conventional single exhaust. The five-passenger "Minute Man Four" sells for \$1,375 in the United States. There is also a "Doctor's Ideal Car," of the same type and at the same price, which is fitted with adjustable Pullman chairs.

The "Thoroughbred Six" is in a class by itself, between "big sixes" and "little sixes,"

mufflers, so arranged that no two cylinders exhaust into the same tube at the same time. This adds practically no weight to the car. Severe and long continued tests of this device, the manufacturers state, showed that when a motor had the conventional single exhaust system it was impossible to get more than 42.5 horsepower even by increasing the speed above 1,400 r.p.m., as there was a loss of power when this speed was exceeded. When the same motor was tested with the Moore system the power climbed steadily, and at 1,600 r.p.m. the motor was developing 52.2



The "Thoroughbred Six," a six-passenger touring car made by the same company and offered at \$1,875

The manufacturers state that it exceeds the ordinary light six in power and roominess and easy riding, but it is not in the big six class as far as initial cost and upkeep is concerned. It will make 17 miles per gallon of gasoline, for instance. The six-passenger touring car and the roadster, in this model, are priced to the consumer at \$1,875 each.

The Lexington "Six Supreme" is a car for the connoisseur in automobiles. It is larger than most cars, its seats are more commodious, its engine has a lot of reserve energy and there are many minor points of refine-

ment. Mufflers were used in both cases. With this system it is claimed that maximum power, easy carburetion, absolute ignition and remarkable economy are obtained.

The Lexington car is manufactured by the Lexington-Howard Company, Industrial Plaza, Connersville, Indiana, U. S. A. They desire to open negotiations with established and reputable houses throughout the world for the handling of their automobiles. Inquiries in any language will meet with prompt and full replies.

A Spark Plug of New Design

THE new design of plug, illustrated herewith, is claimed to minimize or to avoid entirely common defects, to resist fouling and to permit easy cleaning without breakage or injury. It is made with variations to assure constant high motor efficiency under all conditions.

The insulator is made of extremely thin sheet mica spirally wound upon the central electrode and forced to a permanent gas and oil-tight joint within a steel bushing. The layers of mica extending each way from the bushing overlap each other and cannot become loosened or broken. The mica above the bushing is enclosed in a porcelain spacer, which could be cracked or even entirely removed without short-circuiting the plug.

The insulator, as a whole, is easily removed from the plug for cleaning by unscrewing a

single metal-to-metal gasketed joint. With the central electrode thus taken out, the carbon on the insulator surface is easily removed by washing with gasoline or, if necessary, scraping with a knife. This done and the insulator screwed back to the shoulder and the spark gap correctly adjusted, the plug becomes as good as ever. The cleaning operation can be repeated any number of times and the joint always closed gas tight. Battering of wrench and thread surfaces is prevented by case hardening.

As a precaution against overheating the insulation, the central electrode or pin is made with a much greater cross-section than the mica insulation it-

self and offers a large body of metal to rapidly conduct the heat through the plug to atmosphere.

The wire used in the electrode terminals is of a special composition that will neither fuse nor corrode. The outer wire forming the spark gap, being bent in a semi-circle around the central electrode, gives the spark a wide selection of points. The wire is anchored into the shell at both ends to better assure its staying in place and conducting away excessive heat.

The Benton Plug has been made slow to foul and overheat, first, by almost closing the shell and leaving little gas space within, which minimizes heat generation and carbon formation here; second, by a heavy metal shell in contact with the cylinder to conduct the heat away rapidly, and, third, by shaping the internal passages so that exploding gas blows away from the insulator a large percentage of the carbon that would otherwise be deposited.

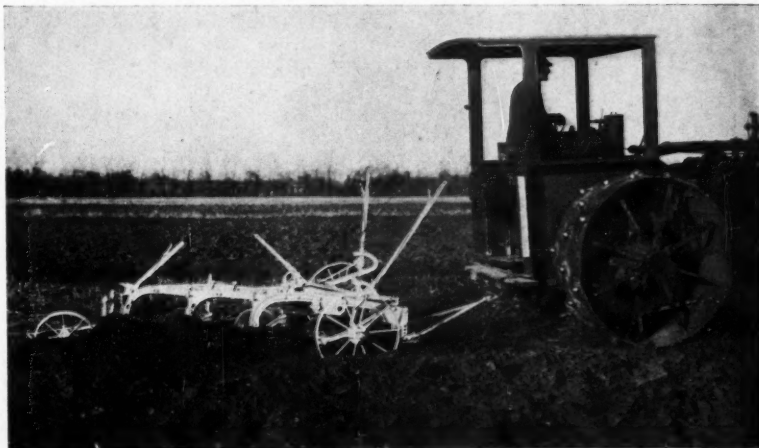
The Benton Plug is made by L. F. Benton Company, Vergennes, Vermont, U. S. A.

An Improved Light Draft Gang Plow

A MODERATE sized gang plow for use in connection with small traction engines is particularly desirable for farmers whose operations are not sufficiently extensive to warrant the purchase of one of the large and expensive outfits. Such a plow is now being manufactured by The Parlin & Orendorff Co., of Canton, Ill., U. S. A., and is called the No. 1 Little Genius Power Lift

Engine Gang Plow. It is made in two and three furrow sizes, with 12 or 14 inch bottoms and of any standard type. A third plow attachment can be furnished with the

Another excellent feature of the "Little Genius" is that when the bottoms are released the whole weight of the plow is immediately brought to bear upon them, thus

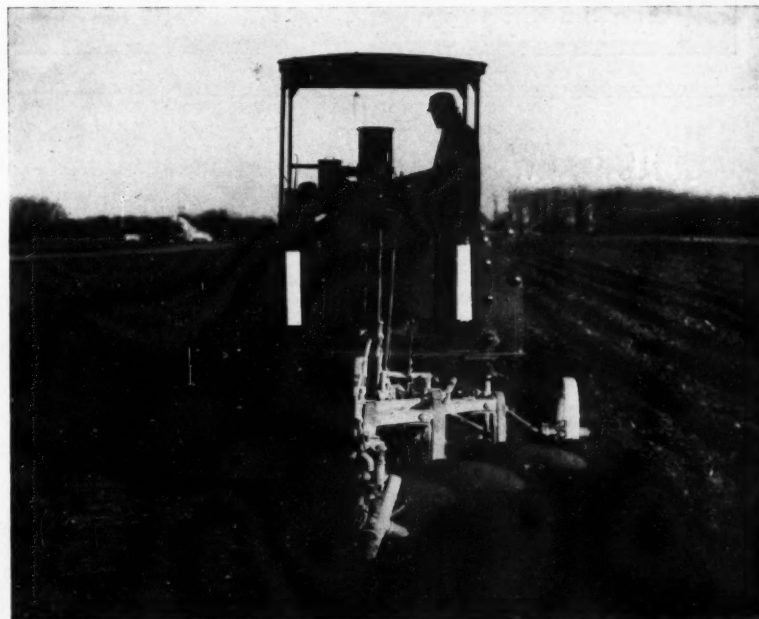


The "Little Genius" engine gang plow is an ideal one-man outfit, as the engineer also operates the plows by an automatic power lifting device

two furrow plow, while the three furrow can be reduced to two whenever desired by removing the second and third bottoms and putting the rear bottom on the second beam.

This plow is claimed to be an ideal implement for use on a moderate sized farm with

literally forcing the points into the ground. Still another advantage to which consideration should be given is the speed with which the bottoms are raised and the abrupt angle at which they leave the ground, so that the head lands are almost perfectly straight.



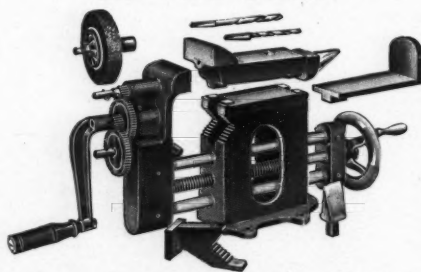
Rear view of the "Little Genius" gang plow in field work. It is a two or three-bottom plow that can be used behind a small traction engine

a small tractor, because of its low initial cost and the fact that the entire outfit can be easily cared for and operated by one man. The latter is made possible by the plow being provided with an automatic lifting device which enables the operator to raise or lower the bottoms by a slight pull on a rope from his position on the engine platform or seat.

The power for raising or lowering the bottoms is supplied from a small sprocket on the hub of the land wheel which operates a larger sprocket controlled by a clutch.

These plows are provided with a break pin coupling, which provides against damage to the engine or plow when meeting any hidden obstruction, such as stones or large roots. The hitch is adjustable to any style or size of tractor, and its strength and rigidity allows for the backing up of the entire outfit whenever such action becomes necessary. Those desiring further particulars regarding the "Little Genius" power lift engine gang plow can obtain the same by addressing The Parlin & Orendorff Co., Export Department D. R., Canton, Ill., U. S. A.

A COMPLETE WORKSHOP IN ONE TOOL



WE illustrate herewith the most practical and satisfactory combination tool ever offered by any manufacturer.

The Stewart Handy Worker

It comprises:—A strong and powerful vise up to 4½ inches; width of jaw 4 inches; cutting hardie; pipe vise which takes up to 1½-inch pipe; drill press which may be operated at two speeds; anvil; corundum grinding wheel 5 x 1 inch. Speed ratios are 4 to 1 and 16 to 1.

This tool can be attached easily to bench or table and will do most serviceable work. A buffing wheel, small circular saw, scratch brush, etc., can be used where grinding wheel attaches.

Weight, boxed for shipment, 100 lbs. Size of box 27" x 13½" x 9". Price, each \$12.50

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the Piano by which all others are measured and judged, is not merely a local or national one. It is international, universal, world-wide, and is the recognition, in the strongest possible manner, of a work of art that is in its line unequalled and unrivalled.

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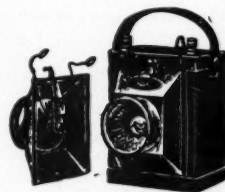
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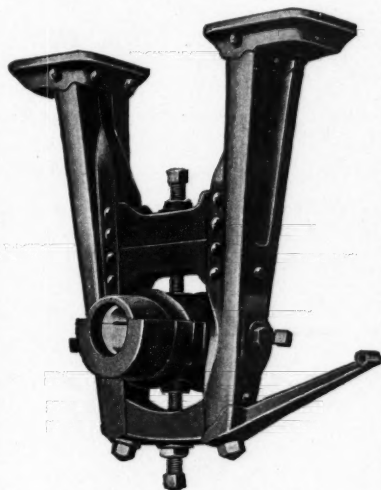
It will pay you to make a trial. Where not represented write for price list to

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COPENHAGEN, DENMARK



Improved Power Transmission Specialties

ENGINEERS, factory owners and other users of power will find much to in-



The "Lytestrong" steel shaft hanger, with belt shifter arm attached

terest them in a catalogue recently issued by the Bond Foundry & Machine Co., of Manheim, Lancaster Co., Penn., U. S. A., illustrating and describing their extensive line of transmission specialties. Included therein are shaft hangers in great variety, brackets, pillow blocks, clamp boxes, bearings, floor stands for large shafts, base plates, couplings, girder clamps, safety collars, pulley bushings, etc., many of which embody im-

to ensure the greatest strength and rigidity, while at the same time it is only one-half the weight of the ordinary cast iron hanger.

The "Spiro" coupling is so designed that every square inch of bearing surface in the inside of the sleeve comes in direct contact with the shaft, and as it has a spiral slot cut through the entire length it possesses enormous gripping power. This makes the shaft practically one continuous piece.



"Bond" patent "Spiro" compression coupling—(A) sleeve, (B) outer shell, (C) inner shell

provements of great practical value.

Special attention is directed to the "Lytestrong" steel shaft hanger and the "Spiro" compression hanger, both of which are claimed to be a marked improvement over anything of the kind now on the market. The manufacturers state that the "Lytestrong" steel shaft hanger is scientifically constructed, the metal being shaped so as

Slipping is impossible because, as shown by tests in actual service and with scientific instruments, the "Spiro" possesses from 40 to 60 per cent. more gripping power than any other compression coupling on the market. Those desiring to learn more regarding these improved transmission devices, should write the company at the above address for a copy of this catalogue.

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Will appeal to every sign man who has had experience with letters of other makes, and the prices will be a revelation.

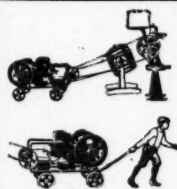
Orders for stock letters are shipped on the day the order is received. Orders for SCRIPT and other special design letters may be shipped, if required, on the day the order is received, and in all cases within three days.

A full line of regular stock plates is always on hand, and orders for special plates are filled promptly.

We Want Every Sign Man—who buys 1,000 inches or more at a time—to write for our prices and samples

We have been manufacturing Enamel Dials for Clocks, Meters, Indicators, etc., for most of the largest concerns in the United States for the past twenty years, and would be glad to quote prices and send samples on application. Also Enameling on Cast Iron.

MANHATTAN DIAL MFG. CO., 40 Lexington Ave., Brooklyn, N. Y., U. S. A.

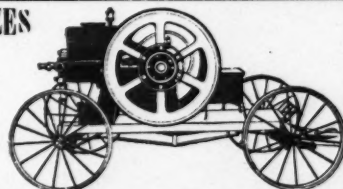


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D 189—Same with Gray Cloth
Quarter.

D 190—Same with Black Cloth
Quarter.



D 184—Women's Patent Pump,
Sand Cloth Quarter, McKay.



D 167—Women's Patent Pump,
McKay.



S 572—Women's Patent Pump,
White Piping, Welt.



C 126—Men's Gun Metal Lace
Oxford, Fawn Cloth Top,
Welt.

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S 165—Men's Dark Russia
Calf Lace Oxford, Fawn Cloth
Top, Welt.

S 166—Same in Gun Metal,
Fawn Cloth Top, Welt.

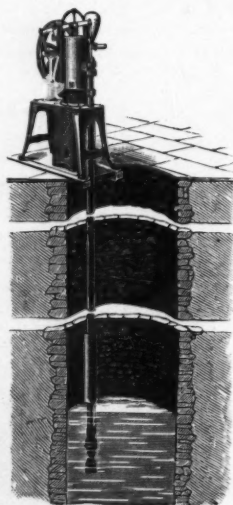


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